STIPULATION AND ADDITION TO RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1893.

No. 363.

THE CONSOLIDATED ROLLER MILL COMPANY, APPELLANT,

vs.

THE BARNARD & LEAS MANUFACTURING COMPANY.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE NORTHERN DISTRICT OF ILLINOIS.

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JUDD & DETWEILER, PRINTERS, WASHINGTON, D. C., MARCH 12, 1804.

WILLIAM DICKENSON GRAY IN MILWAUKEE (STAAT WISCONSIN, V. S A.).

Walzenstuhl mit Riemenantrieb.

FIG. 1

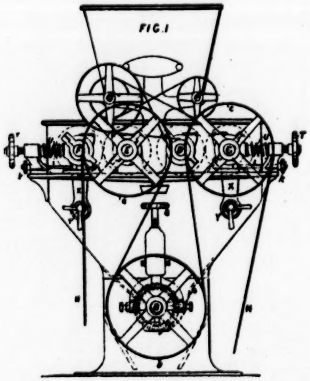


FIG. 2.

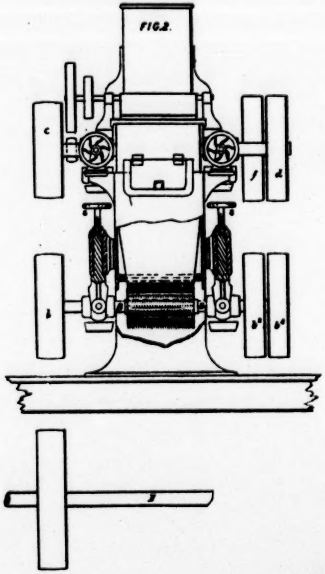


FIG. 3

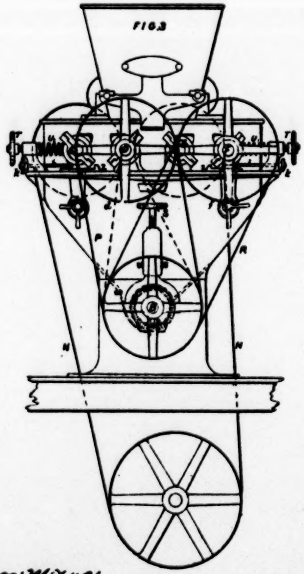
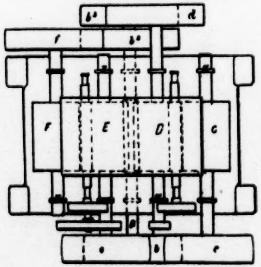


FIG. 4.



No. 363 C.R.M.C. } ℔ 2 a
M. R.M.W.C.

Zu der Patentschrift

№ 7961.

PHOTOGR. DRUCK DER REICHSDRUCKEREI.

1 Supreme Court of the United States, October Term, 1893.

THE CONSOLIDATED ROLLER MILL COMPANY, Appellant,
vs.
THE BARNARD & LEAS MANUFACTURING COMPANY. } No. 363.

Stipulation.

It is hereby stipulated that pages 266 to 300, inclusive, hereto attached, and the drawings therewith, were embraced in defendant's record in this cause in the court below, and, having been inadvertently omitted from the transcript as certified up by the clerk, are properly a part of said transcript, and shall be so treated and used at the hearing of the cause in the Supreme Court; and the clerk of the Supreme Court is hereby authorized and requested to print the same as a part of said transcript, with the same force and effect as if it had been included in said transcript as certified.

GEO. H. LOTHROP,
Counsel for Appellants.
ROB'T H. PARKHURST,
Counsel for Appellee.

2 DEFENDANT'S EXHIBIT TRANSLATION GRAY GERMAN PATENT.

1879. Letters patent No. 7961. Class 50.

WILLIAM DICKENSON GRAY, of Milwaukee (State of Wisconsin U. S. A.).

Roller Mills with Belt-drive. Patented in the Kingdom of Germany, on 5 March, 1879, A. D.

In the present mill the individual rolls are driven through belts, and thereby vibration of the mill and of the floor, such as caused by the use of spur-gear, is avoided.

Further, a more perfect working of the mill is obtained; the grinding takes place more uniformly, the rolls remain serviceable longer and the capacity of the mill can be increased extraordinarily by simply raising the speed of the rolls.

The shaft B serves as a driver of the mill, and can also at the same time serve as a pulverizing apparatus, by placing a brush or metallic cylinder provided with teeth upon it and allowing the same to act against a correspondingly formed cylinder segment, as shown in figures 1, 2 and 3 of the accompanying drawings.

Further, this arrangement makes it possible to easily alter the speed of the rolls by placing differential belt pulleys on the shaft B, or upon the axles of the rolls.

In the accompanying drawings—

(Here follows diagram marked p. 2*a*.)

Fig. 1 is a view of a roller mill.

Fig. 2. A partial section in elevation through the roller mill.

Fig. 3. A rear side elevation.

Fig. 4. A plan view from beneath (above).

The main belt, N, drives, as shown in Fig. 1, the rolls C and E, with the aid of belt pulleys *c* and *e*, in the same direction,
3 and the shaft B, with the aid of the belt pulley *b*, in the opposite direction.

In order to turn both of the other rolls D and F in the opposite direction, the drive is continued by means of a belt R and P from the sheaves b^2 and b^3 on the axle B, at the opposite side of the machine, to the sheaves, *f* and *d*, on the axles of the rollers F and D.

The two feed-rolls G and H are driven from the axles of the rollers E and D by belts.

The shaft B serves also as a belt tightener for the individual belts and is to this end journaled in movable bearings, which can be adjusted by means of screw and hand wheels S. (See Fig. 1, 2 and 3.)

The part B can also be treated as a non-revolving axle mounted in two blocks which are adjustable in guides in order in turn to cause the stretching of the belts, accordingly as the distance between the axes of B and the rollers is increased. Then naturally the sheaves *b*, b^1 and b^2 must run loosely upon it, the latter being mounted on the other side and carried along with the sheave *b*.

The rollers E and D are mounted in fixed bearings—that is, they cannot be adjusted horizontally, while the rollers C and F, which are journaled in the movable arms or levers X, X, permit such a movement.

The lower ends of these arms or levers X, X, are attached to a cam or eccentric pin Y, so that by adjustment of the latter the rollers can be lifted or lowered.

The pressure between the rolls is regulated by spiral springs U, which may be adjusted by means of hand wheels, while by means of the rods *i*, *i*, the normal distance between the rolls may be regulated. With the aid of the rods and hand lever *k* the rolls can be drawn back from each other when no grinding is going on.

By means of the above rehearsed arrangement the attend-
4 ant can adjust the rolls in a vertical or horizontal direction, as desired.

A fast or even adjustable bracket *z*, which is placed before each movable bearing or box, serves to guard the rolls from coming too close together.

The rolls C, D, E, F (see figure 2) can be of porcelain, chilled cast iron, stone, or composition.

To avoid heating of the bearings, rings *x x*, figures 2 and 3, are welded upon the shafts or axles, which cause a liberal oiling of the bearings and also prevent sidewise movement of the rolls.

Claims: In the roller mill referred to in the description and drawings—

1. The employment of a shaft B, which serves as well for the driving of the rolls in the proper direction as also for the tightening of the belts.

2. The employment of a pulverizing apparatus, whose rotating cylinder is the shaft B itself, or can be secured thereon.

3. The employment of a shaft B, which can be fixedly mounted, and upon which the belt sheaves can run loosely, whereby the driving sheave carries the others with itself, for the tightening of the belts, according as the shaft, mounted in blocks, is separated more or less from the axes of the other belt sheaves.

It is herewith attested that the patent granted to William Dickenson Gray, of Milwaukee, State of Wisconsin, U. S. A., under No. 7961, for a roller mill with belt-drive, in consequence of the failure to pay the tax for the 7th year of the term of the patent, has expired, and is cancelled on the patent rolls.

Berlin, the 23d March, 1888.

(Imperial Patent Office. Division 2.)

MEYER.

Imperial Patent Office.

[SEAL.]

5 August F. Herbsleb, of Cincinnati, Ohio, of lawful age, being duly sworn, deposes and says that he is accustomed to read, write and speak both German and English, and also accustomed to examining letters patent, and that the accompanying translation is a correct English version of the German patent to W. D. Gray, dated March 5th, 1879, and of the endorsement thereon, the same having been carefully compared by him.

AUGUST F. HERBSLEB.

Subscribed and sworn to before me, this 29th day of June, 1889.

JAMES N. RAMSEY,

[SEAL.] *Notary Public, Hamilton Co., Ohio.*

Certified to be a correct translation in accordance with stipulation of counsel.

JOSEPH G. PARKINSON.

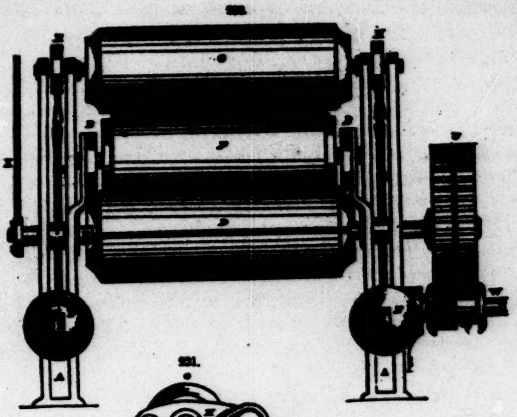
6 DEFENDANT'S EXHIBIT EXTRACT FROM APPLETON'S DICTIONARY OF MECHANICS, 1852.

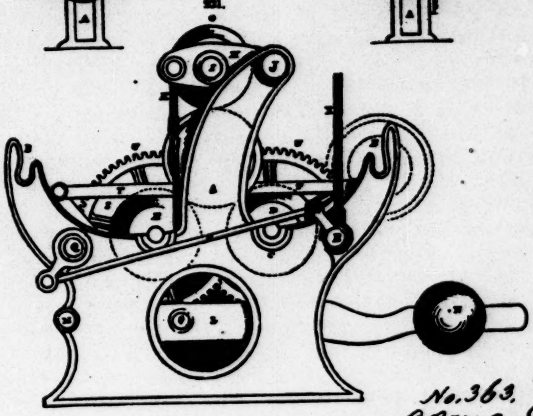
Beetling machine.—This invention relates to improvements in producing various kinds of ornamental and other figured fabrics, by pressure from corrugated or indented surface rollers, of various patterns; and consists, first, in the peculiar construction and arrangement of suitable machinery called beetles, in which one or more grooved or indented roller, or rollers, form the principal feature of these improvements; the said rollers being employed for the purpose of giving to woven fabrics a glossy finish, similar to that which is now produced by the ordinary stamps used in the machines called beetles. Also, for improvements in arranging and applying steam or fluids to such purposes, thereby giving a certain pressure to the rollers employed in the improved beetle; and, further, for a combination of mechanical arrangements necessary for

the construction of a roller mangle, with a sufficient pressure to produce, when required, the operation of beetling. The accompanying engravings represent—

(Here follows diagram marked p. 6*a*.)

At Fig. 230, a front elevation, and at Fig. 231, an end elevation of the above-mentioned machine, with the same letters of reference applying to similar parts. A A are cast-iron standard frames, having side-claw projecting bearings B B, Fig. 231, with two central horn-shaped ones A^1, carrying the pressure-lever links; C C are bush-bearings for the journals of the beetling rollers D and E, which rotate horizontally with each other in opposite directions; F F is the roller upon which the cotton fabrics, about to undergo the beetling process, are wound; G G is the pressure roller, mounted in the lever link motion-head H H, upon the central horn standard *j*, in a manner subsequently explained; I is the shaft upon which the pressure roller
7 revolves; K K two connecting rods on each side of the machine, attached in vertical position at the top to the links H H, and at their lower ends to the weighted levers L L; M is the center stud, upon which the levers L L radiate; N N are two spherical-shaped balls or weights, for giving pressure to the roller G, through the medium of the levers L L, assisted by their own gravity; O is the bearing on which the connecting rods K K move; P is an intermediate crank motion rod, coupling the two way link-shafts V R, and giving motion horizontally to the longitudinal rest-bars T T, through the quarter-way links S S, in gear with the same; U U are two spur-wheels, mounted upon the beetling roller shafts D and E, in gear with a pinion V, on the driving shaft; W X is a long hand lever, the object of which is to raise the different rollers from their beds by it in the manner hereafter explained. Having thus far described the various arrangements and parts of which this invention consists, it is necessary to explain its mode of working, and the numerous advantages that may result from its application to the various purposes for which it is intended. Steam, or other motive power, is in the usual manner first applied to the driving shaft W, which is mounted in a bracket bearing against the standard framing, as represented in the engraving; whilst the other end is similarly mounted against a wall or other convenient place, and when driven by the action of steam, it causes the pinion V, on the end, which takes into the spur-wheels U U, to propel the same, and thereby gives the required motion to the machine or apparatus during the process of beetling. It must be observed, that the cotton fabrics about to be mangled or beetled, are first wound upon the roller F; to accomplish which, the roller has to be removed or taken out of its place, which is performed in the manner hereafter explained. Having completed the operation of winding the cotton on the rollers, it is then passed between the beetling rollers D and E, which are furnished with
8 peripheries, such as are seen in the two smaller engrav-





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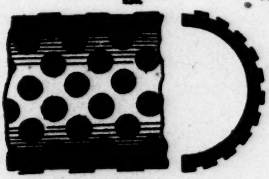
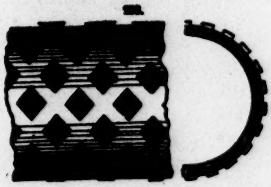




ings annexed; these are embossed, or checkered in different patterns corresponding to the rollers employed. The fabrics are then taken from the rollers and replaced by others, during the working of the machine, and the operations effected. The pressure to which the fabrics are exposed by the constant rotation of the rollers between which they pass, is produced and carried into effect as follows: The roller G G, with its movable link bearings on each side, centered on the horn-shaped standards, are caused, through the medium of the side connecting rods K K, to receive the entire weight of the levers L L, in addition to the weights H H on the ends, and consequently offer a sustaining pressure to the fabrics during the process of beetling. On the other hand, when it becomes necessary to supply the apparatus with plain cotton fabrics, and remove those already beetled, the levers L L, which are represented as having holes at one end for the employment of any suitable or convenient tackle, are to be by such means raised, the action of which will have the effect of raising also the head links and pressure roller, and thus, by removing the weight, enable the roller beneath to be lifted out of its seat, and placed in one of the end claw bearings B B, as represented by the dotted lines. The mode of effecting this part of the operations will be readily comprehended by reference to the engraving, Fig. 231, where T T shows a bar of iron horizontally placed on each side, beneath the journals of the roller F, forming a rail or table upon which they are to be moved. When a downward motion of the lever handle is given by the operator, it causes the coupling rod P, through the medium links P R, in connection with others on the same shaft, in gear with the rest-bar T T, to move upwards horizontally, similar to the action of a parallel rule, and raise the rollers F or B out of, or into their respective places, by enabling the rollers to be rolled along them, when disengaged from their bearings or seats, and carefully lowered into their places, in readinss for the next operation. From these observations it will be seen that, first, the levers L L are to be raised in the manner which will cause the roller G G to be also raised, through the medium of the connecting rods K K, when the pressure will be removed from the lower rollers, and which will enable them to be raised to the required height, so as to transfer them from one seat or bearing to another, and thus allow the fabrics to be changed by removing those already having undergone the process, and supplying the other roller with plain ones. The patentee, although he describes and sets forth the employment of the side levers, yet does not confine himself exclusively, as other and equally effectual means may be applied with the same advantages, such as steam pressure, liquids, or otherwise; and in many cases the weight of the rollers themselves might be found sufficient to give the required pressure without the intervention of additional pressure.

The next object to which the patentee directs attention, is to the improved mode of constructing roller mangles, which consists of very nearly the same arrangement of rollers, the only apparent

difference being the introduction of a flexible lever or spring, firmly fixed to the standards upon which the pressure roller is mounted, being brought to act upon the same to any degree of force, by the application of a hand wheel and screw spindle, supported in bearings, suitably arranged. To the end of the screw spindle two fixed studs are attached, between which the lower end of the flexible lever or spring is introduced, so that when the spindle is screwed to or from the centre of such standard, carrying the roller, the pressure is applied by reason of the standard moving from a centre with the roller under an elastic pressure thus given by the forward or backward application of the screw hand-wheel spindle. The patentee states that cast-iron rollers may be employed for dry articles,
10 but for damp ones, bell metal would be found better adapted.

One of the advantages derived from this system of mangling is the small space the machine occupies, together with the accommodation which it offers by being placed within a piece of furniture having drawers for the purpose of disposing of the various articles when so mangled, and thus forming a very useful piece of furniture, and which may, if necessary, be rendered highly ornamental in place of the present incommodious machine now in use. The same principle also extends to a portable description of mangle, which the patentee states may be temporarily set up on a table or dresser, and made to answer all the purposes for which it is intended, motion being given to it by hand levers in the usual manner, but employing, as a means of giving pressure, a lever, as in the first-mentioned instance; but with this difference, that the connecting rod K, in the beetling apparatus, has in this instance a rack and pinion as a means of adjusting it, so as to obtain the requisite pressure. The patentee, after describing the peculiar forms given to the several rollers comprising a series of different patterns, and the best means of constructing them and forming the corrugations or indentations upon them, would wish it to be distinctly understood, that he claims as new and of his invention: First, the employment of rollers having indented, grooved, checkered, or undulated surfaces or peripheries, for producing by pressure corresponding marks or impressions therewith upon cotton or other fabrics. Secondly, for the general arrangement of parts constituting the action and construction of the said improved machinery. Thirdly, for the employment of water or other fluids within the aforesaid rollers, to act independently of other pressure apparatus, such as the long levers in Figs. 230 and 231, of the annexed engravings; also for the application of steam to such purposes, causing, in the usual manner by its expansion within a cylinder, a pressure to be
11 exerted upon the rollers, and at the same time that such application should be available for the purposes of taking off and removing the pressure when required, the same means employed for the one shall be found effectual in performing the other. Fourthly, and lastly, for the use of the numerous patterns as applied to cylinders employed in the process of beetling, or to other like machines or apparatus, either for mangling, or otherwise, as hereinbefore fully detailed. See calendars.

12 DEFENDANT'S EXHIBIT PLEADINGS AND DECREE, ALLIS *vs.* FREEMAN.

Circuit Court of the United States, Western District of Wisconsin.

EDWARD P. ALLIS *vs.* A. A. FREEMAN. } In Equity.

Bill.

To the honorable the judges of the circuit court of the United States in and for the western district of Wisconsin:

Edward P. Allis, a resident of the city of Milwaukee, in the State of Wisconsin, and citizen of said State, brings this, his bill, against A. A. Freeman, a resident of the city of La Crosse, in said State of Wisconsin, and a citizen of said State.

And thereupon your orator complains and says that William D. Gray is the true, original and first inventor of a certain new and useful improvement in roller grinding mills not known or used before his invention thereof, and not, for more than two years prior to the date of his application for a patent therefor, in public use or on sale.

And your orator further shows unto your honors that the said William D. Gray so being the inventor of said improvement, and being a citizen of the United States aforesaid, made application to the proper department of the Government of the United States for letters patent, in accordance with the then existing laws of Congress, and having duly complied in all respects with the conditions and requisitions of said laws, on the 23d day of December, 1879, letters patent of the United States No. 222,895, signed, sealed and executed in due form of law, for his invention, were issued and delivered to the aforesaid William D. Gray, whereby there was

13 secured to him, the said William D. Gray, and his heirs or assigns, for the term of seventeen years from the 23d day of December, 1879, the full and exclusive right of making, using and vending to others to be used the said improvement.

And your orator further shows that a description or specification of the aforesaid improvement was given in the schedule to the aforesaid letters patent annexed, accompanied by certain drawings referred to in said last-mentioned schedule and forming part of said letters patent. The said letters patent and the said specifications thereto annexed (which, or an exemplified copy of which, your orator will produce, as your honors may direct), were duly recorded in the Patent Office.

And your orator further shows that the said William D. Gray is the true, original and first inventor of a certain other new and useful improvement in rolls for reducing grain, middlings, etc., not known or used before his invention thereof, and not, for more than two years prior to the date of his application for a patent therefor, in public use or on sale.

And your orator further shows unto your honors, that the said W. D. Gray so being the inventor of said improvement, and being a citizen of the United States aforesaid, made application to the proper department of the Government of the United States for letters patent in accordance with the then existing laws of Congress, and having duly complied in all respects with the conditions and requisitions of said laws, on the 8th day of June, 1880, letters patent of the United States No. 228,525, signed, sealed and executed in due form of law, for his invention, were issued and delivered to the aforesaid Wm. D. Gray, whereby there was secured to him, the said Wm. D. Gray, and to his heirs or assigns, for a term of seventeen years from the 8th day of June, 1880, the full and exclusive right of making, using and vending to others — be used, the said improvement.

14 And your orator further shows that a description or specification of the aforesaid improvement was given in the schedule to the aforesaid letters patent annexed, accompanied by certain drawings, referred to in said last-mentioned schedule, and forming part of said letters patent. The said letters patent, and the said specifications thereto annexed (which, or an exemplified copy of which, your orator will produce, as your honors may direct), were duly recorded in the Patent Office.

Your orator further shows that the said Wm. D. Gray is the true, original and first inventor of a certain other new and useful improvement in "feed-drive for roller mills for grinding grain," not known or used before his invention thereof, and not for more than two years prior to the date of his application for a patent therefor, in public use or on sale.

That the said Wm. D. Gray so being the inventor of said improvement, and being a citizen of the United States aforesaid, made application to the proper department of the Government of the United States for letters patent, in accordance with the then existing laws of Congress, and having duly complied in all respects with the conditions and requisitions of said laws, on the 21st day of December, 1880, letters patent of the United States No. 235,761, signed, sealed and executed in due form of law, for his invention were issued and delivered to the aforesaid Wm. D. Gray, whereby there was secured to him, the said Wm. D. Gray, and to his heirs or assigns, for the term of seventeen years from the 21st day of December, 1880, the full and exclusive right of making, using, and vending to others to be used, the said improvement.

And your orator further shows that the description or specification of the aforesaid improvement was given in the schedule to the aforesaid letters patent annexed, accompanied by certain

15 drawings, referred to in said last-mentioned schedule and forming part of said letters patent. The said letters patent, and the specifications thereto annexed, were duly recorded in the Patent Office, and the same or a duly certified copy of the same will be produced, as your honors shall direct.

Your orator further states, that by virtue of a certain assignment in writing duly executed, and duly recorded in the United States

Patent Office, the said Gray has sold, assigned and transferred unto your orator all his right, title and interest in and to said three letters patent, and the inventions therein set forth and described, as well, also, in and to all his right and demands for infringement against this defendant and all persons whatever; said assignment, or a certified copy thereof, will be filed herewith, as your honors may direct.

And your orator further shows that he has extensively applied the several improvements to practical use, and has been, and but for the infringement hereinafter complained of, your orator would still be in the undisturbed possession, use and enjoyment of the exclusive privileges secured by the said letters patent, and in the receipt of the profits of the same.

And your orator further shows unto your honors, as he is informed and believes, that the said defendant herein named, well knowing all the facts hereinbefore set forth, is now using roller grinding mills and machines embracing in the same of some parts thereof substantially the same construction and operation as in the said three several letters patent mentioned, the exclusive right and privilege to make and use which, and vend the same to others to be used, is thus vested in your orator.

And so it is, may it please your honors, that the said defendant, as your orator is informed and believes, without the license of your orator, against his will and in violation of his rights, has used
16 and intends to continue still to use the said improvements within the western district of Wisconsin, and refuses to pay to your orator any of the profits which he has made by such unlawful manufacture and use, or to desist from the further infringement of said recited letters patent, all of which acts and doings are in violation of the exclusive rights and privileges, so as aforesaid vested in your orator under and by virtue of said recited three letters patent and assignment, and are contrary to equity and good conscience and tend to the manifest injury of your orator in the premises.

To the end, therefore, that the defendant may, if he can, show reason why your orator should not have the relief hereby prayed, and that he may make a full disclosure and discovery of all the matters aforesaid, and upon his corporal oath, and according to the best and utmost of his knowledge, remembrance, information and belief, full, true, direct and perfect answer make to the matters and things hereinbefore stated and charged, and particularly to such of the several interrogatories hereinafter numbered and set forth by the note hereunder written, they are required to answer—that is to say:

1. Whether the said original letters patent No. 222,895 hereinbefore mentioned was granted and issued to Wm. D. Gray as aforesaid?

2. Whether the said original letters patent No. 228,525 was issued to the said Wm. D. Gray as aforesaid?

3. Whether the said original letters patent No. 235,761 herein-

before mentioned was granted and issued to Wm. D. Gray as aforesaid?

4. Whether the said defendant has at any time, and when, and during what period of time, used or sold any, and how many, roller grinding mills or machines constructed in whole or in part upon the principles, and in the manner described in said three letters patent No. ——, granted to Wm. D. Gray, as aforesaid?

17 5. Describe minutely and in detail their construction and operation.

And that the said defendant may answer the premises, and that he may be decreed to account for and pay over the income or profits thus unlawfully derived, or which might have been derived from the violation of the rights of your orator, as aforesaid, your orator prays that your honors upon entering of the decree in favor of your orator against said defendant for infringement, as above prayed for, may also proceed to assess, or cause to be assessed, under your directions, as well the profits or income to be derived therefrom, to be accounted for as aforesaid, as also, in addition thereto, the damages sustained by your orator by reason of such infringement, and that your honors may increase the actual damages as assessed to a sum equal to three times the amount of such assessment, under the circumstances of the wilful and unjust infringement committed by said defendant, as hereinbefore set forth; and further, that the said defendant may be restrained from any further violation of the rights of your orator, as aforesaid, your orator prays that your honors may grant a writ of injunction issuing from, and under the seal of this honorable court, or issued by one of your honors, perpetually enjoining or restraining the said defendant, his clerks, attorneys, servants, agents and workmen, from any further construction or sale, or use in any manner of said patented improvements, or any part thereof, in violation of the rights of your orator, as aforesaid. And your orator further prays that a provisional or preliminary injunction be issued restraining the said defendant from any further infringement of said recited letters patent pending this cause, and he prays for such other relief as the equity of the case may require, and to your honors may seem meet.

May it please your honors to grant unto your orator not only a writ of injunction conformable to the prayer of this bill,

18 but also a writ of subpœna of the United States of America, directed to the said A. A. Freeman, commanding him on a day certain therein to be named to appear and answer unto this bill of complaint, and to abide and perform such order and decree in the premises as to the court shall seem meet; and may be required by the principles of equity and good conscience.

W. G. RAINEY,
Solicitor and of Counsel for Complainant.

NOTE.—The defendant is required to answer each of the foregoing interrogatories numbered 1 to 5, inclusive.

UNITED STATES OF AMERICA,
Eastern District of Wisconsin, } ss:

Before me, the subscriber, duly authorized to administer oaths, personally came Edward P. Allis, the complainant in the foregoing bill named, who, being duly sworn, deposes and says that so far as the statements herein contained are within his own knowledge, they are true, and so far as they are derived from the information of others he verily believes them to be true. And he further says that he believes the said William D. Gray in said bill named to be the original, true and first inventor of the new and useful improvements which are described in the three letters patent granted to William D. Gray and mentioned in the foregoing bill.

And further, that the said deponent verily believes that the title of the said complainant is as set forth in said bill.

EDWARD P. ALLIS.

Sworn and subscribed before me this 17th day of January, A. D. 1889.

EDWARD KURTZ,
Clerk U. S. Circuit Court, Eastern District of Wisconsin.

(Endorsed: "Filed January 24th, 1881. F. M. Stewart, clerk.")

19 Circuit Court of the United States in and for the Western District of Wisconsin.

EDWARD P. ALLIS
vs.
ALFRED A. FREEMAN, MARCUS L. FREEMAN and ERNEST ZEIDLER. } In Equity.

Answer.

The answer of Alfred A. Freeman, Marcus L. Freeman and Ernest Zeidler, defendants, to the bill of complaint of Edward P. Allis, complainant, shows:

I. These defendants, now and at all times hereafter saving and reserving unto themselves all and all manner of benefit and advantage of exception that can or may be had or taken to the many errors, insufficiencies and imperfections in the said bill, for answer thereto, or to so much thereof as they are advised it is material or necessary for them to make answer unto, admit that at the time the said bill was filed and at the time a certain stipulation herein was signed, making the said Marcus L. Freeman and the said Ernest Zeidler parties defendant herein, these respondents were partners, composing the firm of A. A. Freeman & Co., but they aver that since that time the said firm has been dissolved, the said Ernest Zeidler retiring therefrom.

II. And further answering, they admit that certain patents, or papers purporting to be patents, were heretofore issued to one William D. Gray of the number, dates and titles substantially as specified in said bill, but as to when or whether the said Gray was the true or original inventor of the improvements specified in said bill and alleged to be described in the specifications of said patents, or as to whether the said Gray made application to the proper department of the Government of the United States for said letters patent, in accordance with the then existing laws of Congress, or
20 complied in any respect with the conditions and requisitions of said laws, they say that except as hereinafter stated they have no knowledge or information sufficient to form a belief, and they therefore deny the allegations of the said bill in those respects, and pray that the said complainant may make proof thereof as behooves him.

III. And they deny that the said Allis was the first inventor of said improvements or of any material part thereof, and say the same were known and used in this country before his alleged invention thereof, and were, for more than two years prior to the dates stated in the specifications annexed to the said patents to be the dates of his application for said patents in public use and on sale in this country. And whether the said Gray sold, assigned and transferred the said patents to the complainant, as specified in said bill, and whether said assignment has been duly recorded in the United States Patent Office, or whether the complainant has any title or interest in said patents, these defendants have no knowledge or information sufficient to form a belief; they therefore deny the allegations of the bill in those respects and pray that the complainant may make proof thereof as it behooves him.

IV. And they deny that the complainant has extensively applied the improvements mentioned in said bill to practical use, and aver that they, or many of them, are not capable of any practical use: and they further deny that the complainant has been in the undisturbed possession, use and enjoyment of the exclusive privileges alleged to be secured by said letters patent, or in the undisturbed receipt of the profits of the same; and they aver that the said complainant has not been disturbed in any such possession, use, enjoyment or receipt by any unlawful, unjust or inequitable acts of these defendants, or of any of them.

V. And they aver that the specifications and drawings attached to said letters patent are in many respects exceedingly vague,
21 uncertain and unsatisfactory; that they do not explain the principles of the machine therein described, or the best modes contemplated by the inventor of applying those principles in such a manner as to distinguish them from other inventions, and they do not particularly point out and distinctly claim the part, improvement or combination claimed as the invention or discovery of the said Gray, whereby they say that the Commissioner of Patents had no jurisdiction to issue the said letters patent, and the same are void and of no effect.

VI. And these defendants further answering, admit that they did at one time use certain machinery containing some parts of the machines described in the specifications of said patents, but whether the said parts of machines are claimed to have been invented by the said Gray, they are by reason of the uncertainty and vagueness of the specifications of said patents unable to determine; and they aver that such use was purely experimental and for a very short and inconsiderable time, and that ascertaining or believing such a construction to be of no practical use or advantage they have discontinued such use and do not intend to resume it.

And they deny that they have used or are now using any roller grinding mills or machinery embracing any improvement or parts of improvements in or to which the complainant has any valid or vested rights.

VII. And further answering, they aver and allege that the said letters patent are utterly void and of no effect, by reason of the matters and things hereinbefore alleged and denied, and by reason of the matters and things hereinafter alleged, to wit: they aver that they are informed and believe that the said Gray was not the inventor of the alleged improvements described in said patents or of material parts of said improvements; and they aver that the said Gray surreptitiously and unjustly obtained said patents for that which was in fact invented by another who was using reason-
22 able diligence in adapting and perfecting, or had, in fact, already perfected the same.

VIII. That the said alleged improvement and material parts thereof had been patented prior to any invention or discovery thereof by the said Gray, to wit: in the English patents granted to the following persons and numbered and dated as follows, to wit:

Henry Simon; No. 2556; dated 25th June, 1879.

Wm. Robert Lake; No. 3328; dated 31st Aug., 1877.

E. W. Bentall; No. 2690; dated 28th Nov., 1859.

And in United States patents granted to the following persons, and numbered and dated as follows, to wit:

J. Goulding; No. 83375; dated Oct. 27, 1868.

A. B. Ely; 63373; dated April 2, 1867.

P. W. Gates; No. 202,941; dated April 30, 1878.

G. C. Howard; No. 112,145; dated Feb'y 28, 1871.

G. Gavit; No. 151,485; dated June 2, 1874. Reissued to him as No. 7102, dated May 9, 1876.

W. Carr; No. 197,719; dated December 4, 1877.

IX. That the said alleged improvements had been described in printed publications prior to any invention or discovery thereof by the said Gray, to wit:

In the United States and foreign patents above mentioned, and in a certain pamphlet entitled "Die Müllerei mit Walzen," published at Leipsic, in Germany, by Moritz Shaefer, in the year 1878.

X. That said alleged improvements had been on sale in this country before any invention thereof by the said Gray and for more than two years prior to any application by him for said patents, to

wit: by the following persons, firms and corporations, at the following places:

The Morton Poole Co., at Wilmington, Delaware.

XI. That the subject-matter of said patents, or material and distinct parts thereof, did not, at the time of the alleged invention thereof by said Gray, constitute either a new art, machine,
23 manufacture or composition of matter, and were not useful or, in the then state of the arts, the product of invention, but in so far as the same were at all new they were merely workshop devices within the knowledge of all skillful mechanical engineers, being the mere application to analogous uses of devices and expedients long and commonly known to machinists and others skilled in similar arts.

XII. And this answer further shows that any and all roller grinding mills which have ever been used by these defendants, or by any of them, which could by any just and lawful interpretation be covered by or be an infringement of the patents mentioned in said bill, or by or of any of them, were purchased of the Morton Poole Company of Wilmington, Delaware.

And these defendants are informed and believe that heretofore, to wit: on or about the 5th day of July, 1881, certain persons, to wit: one R. L. Dawson, one James Dawson and one A. F. Dawson, doing business under the firm name of Dawson Bros., of Wilmington, Delaware, entered into an agreement or contract with the complainant whereby it was agreed that the said The Morton Poole Company might make and sell machines covered by the patents mentioned in the complaint, or by any of them, they, the said Dawson Bros., paying, or accounting for to the said Allis, certain sums of money or royalties for such machines.

And at about the said time it was further agreed between the said parties that the said agreement should extend to and cover all machines theretofore manufactured or sold by the said J. Morton Poole Company, includin those roller grinding mills or machinery alleged by the said bill to ave been used by these defendants and to embrace or be in some parts thereof substantially the same in construction and operation as in the letters patent mentioned in the said bill.

24 Whereby these defendants say that if any further cause of action remains to the said complainant the same is or should be in the court of the common law, and that this court has no further jurisdiction to proceed with the hearing of this cause or to grant the injunction prayed for by said bill.

And these defendants pray the same benefits of the matters and things herein set forth as if for the reasons thereof they had demurred to said bill where a demurrer would have been proper, and as if they had specially pleaded the same where a plea would have been proper; and without admitting that any other matter in said bill, material to be answered, is true, they submit to this honorable court that said complainant is not entitled to any other or further answer than is hereinbefore contained, and is not entitled to any

relief whatsoever against these defendants; all of which they are ready to aver, maintain and prove, as this honorable court shall direct; and they pray to be hence dismissed with their reasonable costs and charges in this behalf most wrongfully sustained.

ALFRED A. FREEMAN,
For Himself, and
A. A. FREEMAN & CO.,
Defendants.

CAMERON, LOSEY & BROWN, *Solicitors.*

STATE OF NEW YORK,
Southern District of New York, } *ss:*
City and County of New York,

Alfred A. Freeman, being duly sworn, deposes and says that he is one of the defendants named in the foregoing answer subscribed by him; that he has read the same and knows the contents thereof, and that the same is true of his own knowledge, except as to the matters therein stated on information and belief, and as to those matters he verily believes it to be true.

ALFRED A. FREEMAN.

Subscribed and sworn to before me this 23d day of November, 1882.

JOHN A. SHIELDS,
U. S. Commissioner for N. Y.

(Endorsed: "Filed November 28th, 1882. F. M. Stewart, clerk.")

Decree.

Circuit Court of the United States for the Western District of Wisconsin.

At the term of said court held on the second day of June, 1884, to wit, August 16, 1884.

Present: Honorable Romanzo Bunn, judge.

EDWARD P. ALLIS
vs.
ALFRED A. FREEMAN, MARCUS L. FREEMAN, and ERNEST ZEIDLER. } In Equity.

This cause came on to be heard and was argued by counsel, and thereupon, upon due consideration thereof, it is ordered, adjudged and decreed as follows, viz: that the complainant's said bill of complaint in said cause be and the same is hereby dismissed upon the merits thereof, with costs to be taxed; and it is hereby further adjudged that the said defendants, Alfred A. Freeman, Marcus L. Freeman and Ernest Zeidler, recover of said complainant, Edward P. Allis, the sum of two hundred thirty dollars and forty-six cents, as taxed, and that said defendants have execution therefor.

R. BUNN, *Judge.*

26 United States Circuit Court, Western District of Pennsylvania.

CONSOLIDATED ROLLER MILL CO.
vs.
R. R. WALKER.

Stipulation.

It is hereby stipulated that the affidavit of Edmund Adcock, purporting to have attached thereto a copy of a letter signed by Romanzo Bunn, may be filed in behalf of the defendants herein under the terms of the stipulation herein, dated July 15th, 1889, and to have the same force as a deposition taken under said stipulation, and subject to the same objection.

R. MASON,
For Complainant.

Affidavit of Edmund Adcock.

STATE OF ILLINOIS, }
County of Cook, } *ss:*

Edmund Adcock, of lawful age, an attorney-at-law of Chicago, Illinois, being duly sworn, says:

I am of the firm of Munday, Evarts & Adcock, of Chicago, lawyers, and was of counsel for defendant in the suit of E. P. Allis against A. A. Freeman, brought on the chancery side of the U. S. circuit court for the western district of Wisconsin, which was heard before his honor, Judge Romanzo Bunn, at Madison, in the summer of 1884.

The annexed is a true copy of a letter from Judge Bunn explaining the grounds of his decision, and which was received by affiant's firm in the ordinary course of the mails. The patents referred to in the letter by Judge Bunn are three several letters patent of the United States granted to William D. Gray for improvements in roller grinding mills. These three patents were known in
27 the case as Exhibits A, B and C, respectively, all three being sued upon. The patent Exhibit B of the series is letters patent of the United States No. 228,525, granted to William D. Gray, June 8th, 1880, for rolls for reducing grain, middlings, etc.

The case was argued on full proofs, on behalf of the complainant by B. F. Thurston, Esq., of Providence, R. I., and W. G. Rainey, of Chicago, and on behalf of defendants by affiant and his partner, John W. Munday, and the argument occupied an entire day.

EDMUND ADCOCK.

Sworn to and subscribed before me this 17th day of July, 1889.

HARRY T. JONES,
[SEAL.] *Notary Public.*

MADISON, *August* 16, 1884.

Munday, Evarts & Adcock, Chicago.

DEAR SIRS: I have today decided the case of Allis *vs.* Freeman in favor of defendants. The conclusion reached in each of the three patents is that in view of the state of the art at the time they were issued to Mr. Gray they do not cover any patentable invention. I have hesitated a good deal about coming to this conclusion, more especially as to the first patent (Complainant's Exhibit A), which is for the device for adjusting the rolls, but after some study, the best judgment I can form is that the previous patents, and particularly the English patent to Lake, covers substantially all that is included in the Gray patent, and that the changes are of a mechanical character not involving invention. The order will be for the dismissal of the complainant's bill with costs.

Yours truly, ROMANZO BUNN.

28 Circuit Court of the United States for the Western District of Wisconsin.

At the term of said court held on the second day of June, A. D., 1884, to wit: September 11th, 1884.

Present: Honorable R. Bunn, judge.

EDWARD P. ALLIS
vs.
A. A. FREEMAN, MARCUS L. FREEMAN, ERNEST ZEIDLER. } In Equity.

And now comes the plaintiff, by his solicitors, and prays an appeal from the decree entered herein on the 16th day of August, 1884, dismissing the bill of complaint, which is granted upon complainant's filing bond in sum of five hundred dollars, conditional as the law directs, with security, to be approved by the court.

September 12, 1884.—This day bond on appeal to Supreme Court approved and record sent to Supreme Court.

WESTERN DISTRICT OF WISCONSIN:

I do hereby certify that the foregoing is a true copy of order allowing appeal to Supreme Court and entry approving bond, and sending record in said cause to clerk of supreme court on said appeal.

Witness my hand and seal of said court at Madison, July 11, 1889.

[SEAL.] F. M. STEWART, *Clerk.*

29 *Proceedings Dismissing Appeal, Allis vs. Freeman.*

Edward P. Allis & Co., Reliance works, Milwaukee, Wis.

DECEMBER 12, 1887.

Rodney Mason, Esq., patent attorney, No. 36, Moffat block, Detroit, Mich.

DEAR SIR: I desire to dismiss the appeal case of Edward P. Allis *vs.* A. A. Freeman, No. 374, October term, 1887, in Supreme Court. Will you kindly give this attention and advise me, and oblige.

Yours truly, EDW'D P. ALLIS.

Rodney Mason, patent lawyer, office No. 36, Moffat block.

DETROIT, MICH., *Dec.* 14, 1887.

James H. McKenney, clerk Sup. Ct. U. S.

EDWARD P. ALLIS
vs.
A. A. FREEMAN. } No. 374. Oct. T., 1887.

Under instructions from Mr. Allis, appellant, enclosed, I ask that the above appeal may be dismissed.

Yours truly, R. MASON.

If this cannot be done upon this written application, will you kindly ask any of my acquaintances at the bar to represent me in open court.

R. M.

30 Clerk's Office, Supreme Court of the United States.

DEC. 16, 1887.

R. Mason, Esq., Detroit, Mich.

DEAR SIR: Yours of the 14th inst., enclosing letter from Mr. Edw'd P. Allis, app'l't, directing you to take steps to dismiss the appeal in case of Allis *vs.* Freeman *et al.*, No. 374, duly received. Your appearance has not yet been entered for appearance at the time case was docketed, and no other appearance has been entered for either side. I enclose blank for you to sign and return. You should also send on a formal motion to dismiss the appeal, and you had better write to some one of your friends and ask him to make the necessary motion for you, as the motion will have to be presented in open court.

Yours truly, JAMES H. McKENNEY,
Per H. C. M.

Supreme Court of the United States. No. 374, October Term, 1887.

EDWARD P. ALLIS, Appellant,
vs.
ALFRED A. FREEMAN, MARCUS L. FREEMAN, and ERNEST ZEIDLER. } Appeal from the Circuit Court of the United States for the Western District of Wisconsin.

This cause being called to the attention of the court by Mr. R. D. Mussey in behalf of counsel, and the authority of the appellant to dismiss this cause having been filed—

It is thereupon, in pursuance of said authority, now here ordered, adjudged and decreed by this court that this appeal be, and the same is, hereby dismissed with costs.

Per MR. JUSTICE MILLER.

April 2, 1888.

31 Supreme Court of the United States.

I, James H. McKenney, clerk of the Supreme Court of the United States, do hereby certify that the foregoing typewritten pages,

numbered from one to two, inclusive, contain true copies of the authority of appellant to dismiss appearance for appellant and decree of said said Supreme Court in the case of Edward P Allis, appellant, *vs.* Alfred A. Freeman, *et al.*, No. 374, October term, 1887, as the same remains upon the files and records of said Supreme Court.

In testimony whereof I hereunto subscribe my name and affix the seal of said Supreme Court, at the city of Washington, this 9th day of July, A. D. 1889.

[SEAL.]

JAMES H. McKENNEY,
Clerk of the Supreme Court of the U. S.

Circuit Court of the United States, Western District of Pennsylvania.

CONSOLIDATED ROLLER MILL COMPANY
vs.
R. R. WALKER.

Defendant desiring to introduce further testimony, it is agreed by complainant that defendant may file in the case, on or before the 20th inst., any additional matter he may desire to introduce relative to the case of Allis *v.* Freeman, in the Western district of Wisconsin, or in relation to an alleged German patent to William D. Gray, subject to all exception; provided that copies of any such papers will be furnished to counsel for complainant on or before the 25th inst.

The translation to the alleged German patent may be furnished under the stipulation herein relating to translations, viz: that they shall be certified to by Jos. G. Parkinson and approved by
32 such person as I may select in the absence of Jesse M. Smith. Should the said persons not agree, then the translations shall be provided in the usual manner.

R. MASON,
For Complainant.

Stipulation.

It is stipulated that, in the absence of proof, the imprint upon the title page of the various publications offered in evidence by defendants may be accepted as *prima facie* the date of publication.

It is admitted by counsel for defendant that the word "Ausgegaben," printed upon German patents offered in evidence, indicates the date when the patent actually issued, the nominal date of the patent being in fact the date of the filing thereof.

It is stipulated that certified copies of the bill of complaint, answer and decree in the case of Allis *vs.* Freeman, U. S. circuit court, western district of Wisconsin, together with a certified copy of the deposition of Wm. T. Porter therein, may be filed in evidence, subject to exception except as to time of introduction.

Also that the certified copies of the Chaufourier and Dingler publications and of the Beyer French patent, which was furnished by defendant to complainant, all certified by the Commissioner of

Patents, may be entered in evidence by defendant, subject to exceptions except as to time of introduction.

R. MASON, *Counsel for Complainant.*
PARKINSON & PARKINSON,
Counsel for Defendant.

33 STATE OF MISSOURI, } ss:
City of St. Louis. }

David Simpson, being duly sworn, on his oath states: I am forty-two years of age, resident of the city of St. Louis, and have been twenty-four years a miller; am head miller of the Anchor mill. Some time in the month of September, 1887, William F. Putnam, to me known personally, head miller of Cleveland Milling Co., Cleveland, Ohio, in conversation with me, in the Anchor mill, in this city of St. Louis, stated as follows: That the Allis roll required a stiff hold-back in order to make it do good work at all times, with a heavy or light feed, and, in order to make a stiff hold-back, he, Putnam, put a plate between the hand wheel and the cup, or recess, that contains the spring, and then screw the hand wheel up solid against edge of cup, and, with a big wrench, screw up solid, so as to take all vibration out of it, and that will hold it solid, and thus neutralize the effect of the spring; and that he had been running the Gray rolls in his mill that way for at least six months past, and that his, Putnam's, Gray rolls were running in that condition when I was in Cleveland mill, in February, 1887. Upon his suggestion I tried it upon the Gray rolls in the Anchor mill in this city, and found it to be a great improvement; that the rolls did much better work that way; and I had the Gray rolls in the President mills, Bethalto, Illinois, changed in the same manner; and the Gray rolls in both the Anchor and President mills are running in this manner, without spring pressure, as, likewise, the Nordyke & Marmon rolls in the Anchor mill, in this city, that are built to run without springs.

DAVID SIMPSON.

Sworn to and subscribed before me this 11th day of December, A. D. 1888, and the alteration in second line, "am" for and, and the interlineation, "that," in last line, were made before being signed.

L. W. STEBBINS,
[SEAL.] *Notary Public.*

34 STATE OF MISSOURI, } ss:
City of St. Louis, }

Lewis W. Doren, being duly sworn, on his oath states: I am a resident of the city of St. Louis, and was engaged in milling from 1880 to January, 1888. I am personally acquainted with William F. Putnam. I first met him in 1884 or 1885 at Cleveland, Ohio. He was at that time head miller of the Cleveland mills, at Cleveland, and he also had an interest in the Wellington Milling Com-

pany, at Wellington, Ohio. I was employed by Mr. Putnam, first, at the Cleveland mills, as purifier-tender, and from there Mr. Putnam sent me to Wellington, in August, 1885, where I was employed as second miller. In this mill at that time was used the Odell rolls; the springs were taken out of part of these rolls, and they were run solid, without any spring tension whatever, during the whole time I was there—a little longer than a year. Mr. Putnam had full control of the Wellington mill, and the taking out of the springs and running the rolls rigid, without any spring tension whatever, was done under Mr. Putnam's direction and instructions. I returned to Cleveland on January 1st, 1886, and, on January 3d, 1886, I accepted the position of roller-tender in the Cleveland mills, under Mr. Putnam, and held that position for two years. In the Cleveland mill during this time were used the Gray rolls and the Stevens rolls, both of which, during all of these two years, were run rigid and solid, without any spring tension whatever. This was done under Mr. Putnam's directions as head miller.

LEWIS W. DOREN.

Sworn to and subscribed before me this 11th day of December, 1888.

MILLARD F. WATTS,
Notary Public, City of St. Louis, Mo.

35 (Copy.)

CLEVELAND, OHIO, 12, 16, 1888.

Rodney Mason, Esq., Detroit.

DEAR SIR: Your letter with enclosed affidavits received and noted carefully. In reply, will say that the subject-matter of the affidavits is true, now for the cause and reason for same. I do run the rolls in question rigid because they were put in for a capacity of 1,000 bbls daily in one instance, and are called upon for a daily capacity of eighteen hundred to two thousand bbls. daily, and in the other instance the rolls were put in for a capacity of 100 bbls. daily, and are called on for a capacity of 250 to 300 bbls daily. This does not change in the least the truth of my deposition, nor does it remove for an instant the fact, that to run rolls rigid removes the possibility of their parting to permit of the passage of foreign substances through the roll without damage to the machine employed; when the rigid roll is taken advantage of as a means to greater capacity, the operative waives all security to his machine proceeding from the improvement furnished by the spring being introduced in the make-up of the roller mill. The affidavits are made by men who have just sufficient sagacity to do as they are told, but who never know from their own thoughts the cause or effect. Show me any mill that runs rolls rigid, and I will show you where they are crowding the mill; use a roller mill at its legitimate capacity and no rigid measures are desirable, but an injury.

Yours truly, W. F. PUTNAM.

36 Circuit Court of the United States, Northern District of Illinois.

THE CONSOLIDATED ROLLER MILL COMPANY }
vs.
THE BARNARD & LEAS MANUFACTURING CO. }

It is stipulated by counsel that the affidavits of Simpson and Doren, and letter of Wm. F. Putnam, may be printed in defendant's record, to be read in evidence with the same force as though duly taken as deposition in this case.

Also that the record in Freeman *vs.* Allis and other matters relating thereto, as published in the record in the Walker case, may be copied into this case, subject to the right of parties to use any part of the printed record in said case of Allis *vs.* Freeman as explanatory thereof.

Also that defendant may amend its answer by inserting a paragraph relating to an alleged German patent to Gray.

Counsel for complainant reserves all right of exception to any evidence that may be presented thereunder other than that of time of presentation.

Also that complainant may submit to the court upon the evidence in the case, the question of infringement of claims 5 and 6 of Gray's patent No. 222,895, the same to be submitted as though accompanied with expert testimony on both sides on the question of infringement and validity, asserting and denying the same, and any testimony in the record may be referred to at the hearing, which in the opinion of counsel bears upon the issues of validity.

Also the complainant may file in evidence a printed Patent Office copy of Gray's specification and drawings No. 228,525.

R. MASON, *For Complainant.*
PARKINSON & PARKINSON,
For Defendants.

[Endorsed:] Case No. 14,438. Supreme Court U. S., October term, 1893. Term No., 363. The Consolidated Roller Mill Co., app't, *vs.* The Barnard & Leas Mfg. Company. Stipulation and addition to record. Filed March 12, 1894.

Office Supreme Court, U. S.
FILED.
MAR 27 1894
JAMES H. McKENNEY,
CLERK

156-261

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1893.

No. 363.

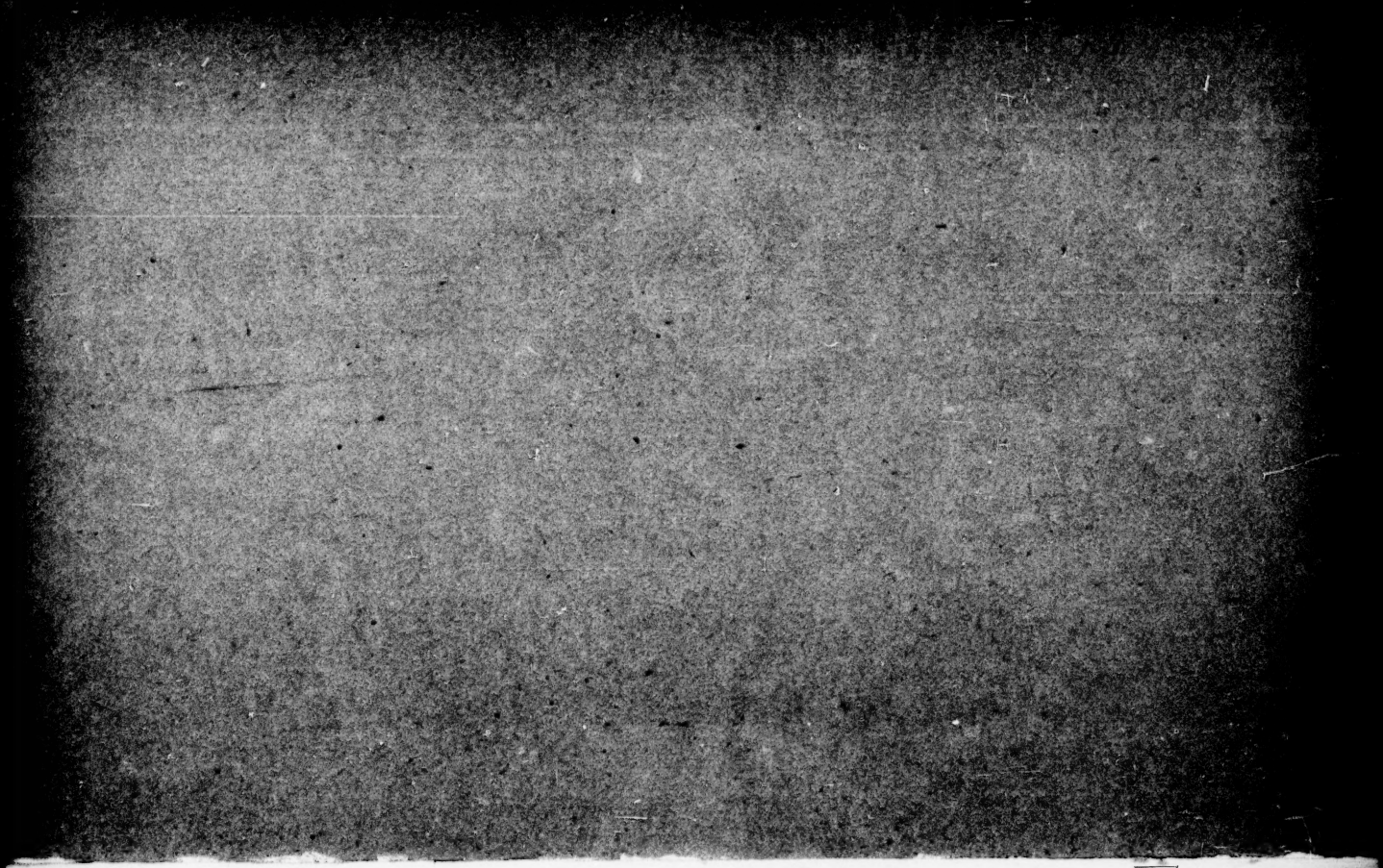
THE CONSOLIDATED ROLLER MILL COMPANY,
APPELLANT,

vs.

THE BARNARD & LEAS MANUFACTURING COMPANY.

BRIEF FOR APPELLANT.

GEO. H. LOTHROP,
Counsel for Appellant.



IN THE

Supreme Court of the United States.

OCTOBER TERM, 1893.

THE CONSOLIDATED ROLLER MILL COMPANY, *Appellant,*

vs.

THE BARNARD & LEAS MANUFACTURING COMPANY, *Appellee.*

No. 363.

BRIEF FOR APPELLANT.

This was a suit in equity for the infringement of four letters patent, viz:

No. 222,895, to Wm. D. Gray, 23d December, 1879.

No. 238,677, to Wm. D. Gray, 8th March, 1881.

Reissue No. 10,139, to U. H. Odell, 20th June, 1882.

No. 269,623, to H. Birkholz, 26th December, 1882.

On hearing, the bill was dismissed for want of equity.

Complainant below appeals.

ASSIGNMENTS OF ERROR.

1. The court erred in dismissing the bill.

2. The court erred in holding the fourth claim of the Gray patent No. 222,895 void for want of novelty, and also in holding that the defendant did not infringe said claim.

3. The court erred in holding the fifth claim of the Gray patent No. 222,895 void for want of novelty, and also in holding that the defendant did not infringe said claim.

4. The court erred in holding the sixth claim of the Gray patent No. 222,895 void for want of novelty, and also in holding that the defendant did not infringe said claim.

5. The court erred in holding the second and third claims of the Gray patent No. 238,677 void for want of novelty and invention, and also in holding that the defendant did not infringe said claims.

6. The court erred in holding the second claim of Odell's reissued patent void for want of novelty.

7. The court erred in holding the first claim of the Birkholz patent void for want of novelty.

The four patents in suit relate to the construction of roller mills.

The Gray patent No. 222,895 is by far the most important of these, and will be first considered.

Gray No. 222,895.

The mill shown and described in this patent has two rolls, one, B, in stationary bearings, the other, C, in swinging bearings D, both on the same level. Each bearing D is made vertically adjustable by an eccentric F, set-screw *b* or lever *d*.

Its upper end is controlled by a rod G, one end of which is tied to the stationary bearing, and which passes through the movable bearing. A nut *l* on this rod limits the approach of the rolls. A spring H crowds roll C towards roll B, holding bearing D against nut *l*. A wheel-nut *j* compresses spring H.

These devices are all that a roller mill requires to grind properly. By them the rolls may be adjusted vertically, or trammed; adjusted for parallelism; the grinding distance regulated to infinitesimal distances; and the rolls allowed to separate to pass any object too hard to be ground by them.

In addition to all these adjustments, there is in this patent mechanism for spreading the rolls, which has a positive, definite range of motion, which in its operation does not alter, vary, or even affect any of the grinding adjustments, which requires only muscle to operate it, not brains.

Where rod G passes through the fixed bearing it has a shoulder *n* abutting against said bearing, and acting as a stop. On the other side of said bearing is a nut *o*, threaded on rod G. By unscrewing nut *o* the roll C is allowed to move away from roll B, and by screwing up nut *o* shoulder *n* is certainly brought back to its original position. An eccentric P is shown in Fig. 8 as the equivalent of nut *o*.

No care, no attention, no skill is required to work this spreading device, and in its operation the delicate adjustments made by the head miller are not disturbed.

This, in combination with the roll adjustments, is the subject of Gray's fifth and sixth claims, and I propose to direct my argument mainly to the fifth claim, as the combination of the fourth claim, though valuable, is much less important, and a discussion of the fifth claim will necessarily bear somewhat upon the fourth claim, and will include the sixth claim.

The fifth claim is for the combination of (1) the roller bearing; (2) the adjusting rod; (3) an adjustable stop to limit the inward movement; (4) a spring; (5) means for adjusting the spring; (6) a stop and holding device at the opposite end of the rod from the spring.

"The roller bearing" being one which is both movable and vertically adjustable as described in the patent, this claim contains the four adjustments, viz: for tram, parallelism, grinding adjustment, and spring pressure, plus a spreading mechanism.

To appreciate the importance of this invention it is necessary to consider and understand the peculiar structure, and very exacting requirements of the class of machines called

Roller Mills.

A roller mill consists (broadly) of one or more pairs of revolving rolls, between which wheat is converted into flour and bran by grinding.

They were preceded by millstones, usually made in the form of disks, set on a shaft one above the other, one revolving and the other stationary.

In these mills grain was introduced through an opening, or eye, in the center of the upper stone, was ground between the faces of the upper and nether millstones, and discharged at the periphery, or skirt, of the stones.

The opposing faces of the stones were usually cut into grooves, called furrows, the parts between the furrows being the land, and this cutting constituted the "dress."

The grinding face of one of the stones was usually dished or concaved around the eye, to permit free entrance of grain, and at the skirt the stones approached each other more closely than at any other point.

Grain introduced between millstones was subjected to their grinding action during the whole time occupied in passing from the center to the circumference.

In a roller mill these conditions are changed. The grinding surface is along a single line, which would be the line of contact of the rolls if they were brought together. In this almost infinitesimal space a pair of rolls must do all its work.

See, p. 188, fol. 357–8.

The rolls must be corrugated on their faces, and must run at different speeds.

Miller, Q. 42, p. 66.
Freischmidt, Q. 48, p. 75.

The rolls must be in the same plane. If not, they would cross each other at the center, and the line would become a point.

See, p. 188.

One roll must be vertically adjustable at each end separately, to attain this end. So adjusting them is called tramming.

Miller, Q. 9, p. 62; Q. 24, p. 65.
Freischmidt, Q. 18–20, p. 73.

The rolls must be horizontally adjustable to make them parallel, for the distance between them must be the same at all points of their length, to enable them to grind uniformly.

Miller, Q. 9, p. 62; Q. 25–26, p. 65.
Freischmidt, Q. 19–20, p. 73.

The rolls must not come in contact, as that would injure, or perhaps destroy, their grinding surfaces.

Putnam, Q. 20, 22, 23, p. 101.

It is highly desirable to hold the movable roll to its work by spring pressure, greater than that required for grinding, but not strong enough to break the machine.

Miller, Q. 15, p. 63.
Putnam, Q. 19 and 25, p. 101.

The spring may be omitted if the operator is willing to take the risk of breaking the machine if a hard substance gets between the rolls.

Putnam's letter, p. 21, addition to Record.

Defendant's expert, Mr. See, says:

"It is important in these roller mills that the two rolls should be parallel with each other, or on the same level" (p. 188, fol. 357).

"While the rolls are at work a definite and exact distance is wanted between them, and means should be provided for adjusting the distance delicately and accurately."

"The working distance between the rolls is very small indeed."

"It is therefore highly desirable that, while the rolls are held together with proper grinding force, they will automatically yield for the passage of any extraordinary hard substance" (p. 189 fol. 360).

Means for spreading the rolls are necessary.

When the rolls are spread they must be brought back to their original position before work can be resumed.

Miller, Q. 9, p. 62; Q. 27, p. 64.
Freischmidt, Q. 33, p. 74.
Gray, Q. 68, p. 87.
Putnam, Q. 25, p. 101.
See, p. 190, fol. 360.

The extreme delicacy of these adjustments is well stated by Mr. Miller, Q. 18–26, pp. 64–5.

In making them the miller is guided by his sense of sight and touch.

Instruments or gauges are of no practical use for this purpose.

The change in distance stated in Q. 20 is less than one four-thousandth part of an inch.

The delicacy of these operations is such that they can be made only by the head miller, a very high-priced man.

A roller mill must have these adjustments.

It must have them in such manner that when once made "they will stay put until further change is deemed desirable."

Putnam, Q. 17, p. 100.

The spring pressure must be great enough to maintain grinding relation under any irregularities of feed, and small enough to yield to breaking strain. It must be solid to grind, liquid to yield.

Scope of Gray Patent No. 222,895.

Gray's original application contained this clause:

"The invention also consists in the devices for separating the rolls when not in action, and in other details."

Upon rejection of the claims on reference to English patent No. 3,328 of 1877, the word "special" was inserted before the word "devices."

The original fifth claim was:

"5. In combination with the stationary roll B and adjustable roll C means, substantially, such as described, for drawing the roll C to a fixed point."

The application was filed 30th July, 1879.

On 14th August, 1879, the entire application was rejected on the English patent above cited, the examiner saying: "The invention alleged and claimed in this case is not generic, in view of English patent No. 3,328 of 1877. The specification needs revision, making it a clear description of the specific means employed by applicant," etc.

The specification was somewhat modified, all the original claims (five in number) erased, and seven claims presented, among them being the present fourth, fifth and sixth claims, which were never rejected.

What effect does this have upon the fifth claim?

In *Sargent vs. Lock Co.*, 114 U. S., 86, this court said:

"That in patents for combinations of mechanism, limitations and provisos imposed by the inventor, especially such as were introduced in an application after it had been persistently rejected, must be strictly construed against the inventor and in favor of the public, and looked upon as in the nature of disclaimers."

In *Leggett vs. Avery*, 101 U. S., 256, and several later cases, this court has held that when a claim is rejected upon reference and erased, the patent cannot be construed as if it contained the claim so rejected and erased.

How do these decisions affect the claim under discussion?

There was here no persistent rejection.

There was no specific rejection, the whole case being rejected on a single reference.

In such a case as this, will not the court look into the reference cited and see how far it sustains the general objection made by the examiner?

And if the court finds that the reference applies only to the phraseology of the claims, and not to the invention, will it not so construe the substituted claims, if possible, as to preserve the real invention?

This was the view taken by his Honor Judge Brown in *Cons. Roller Mill Co. vs. Coombs*, 39 F. R., pp. 29–31.

It is not clear to my mind that the original fifth claim was directed to the spreading mechanism.

But if it was, it does not seem to me that it fairly expressed Gray's invention, or was a proper claim.

It was baldly for the combination with a fixed and movable roll of means for drawing the movable roll to a fixed point.

Such a combination as this, simpliciter, was not new with Gray. Whenever a fixed and movable roll run in actual contact, the periphery of the fixed roll is a fixed point to which the movable roll may be drawn, and this has been done in crushing rolls with springs, weights, screws, etc., before roller mills were dreamed of.

The invention made by Gray consisted in combining with the adjustments for tram, parallelism, grinding distance and spring pressure a separate spreading device independent of, and not affecting any of these adjustments.

This invention was not expressed in the original fifth claim.

It is expressed in the present fifth claim, and that claim has never been rejected or limited by the Patent Office.

If there be any limitation to this claim it is in the claim itself.

The sixth claim is to the specific elements, designated by reference letters, more broadly expressed in the fifth claim, and the two claims are the same if the fifth is closely limited to the specific devices shown arranged in the specific manner shown.

Courts ordinarily avoid giving claims such construction that it will make two the same, and this can be easily avoided in this case.

It seems to me that the fifth claim should be fairly construed as covering the combination in a roller mill of the four adjustments, and a spreading mechanism having a positive, defined return.

The word "special" may fairly be said to apply to the special character of the spreading device, which, unlike any other, has

not only a holding device, but a stop to arrest the return motion positively at a definite point.

It is a special device in that it can return only so far and no further.

INFRINGEMENT.

Defendants' machine, shown in drawing "Barnard and Leas Roller Mill No. 2" (the fourth drawing after p. 430), and by Exhibit Model Barnard and Leas No. 2, differs slightly in appearance from the Gray mill.

It is analyzed by Mr. Smith, complainant's expert, on pages 45–47 of the Record.

The movable bearing is mounted on a swinging arm D, pivoted on an eccentric on a through shaft. Each movable bearing is separately vertically adjustable by means of set screws.

The swinging arm D has a rearward projection *d*, through the end of which is a hole.

A threaded rod G, terminating in a handwheel having a hub *l*, passes through arm *d*, and screws into a nut F, set in the frame of the machine.

A spiral spring H encircles rod G, one end pressing against the underside of arm *d*, the other end pressing against a washer *i* and adjusting nut *j*, with a jam nut *k*, on rod G.

The differences between this machine and Gray's are as follows:

The roller bearing is vertically adjustable on the swinging arm D, instead of being solid therewith.

The swinging arm D is extended backward, instead of above, the roller bearing.

The rod G turns in a nut, instead of having a nut turn on it, and is a compression rod instead of a tension rod.

The spreading or stop and holding device is at the bottom of the swinging arm D, instead of at the other end of rod G.

If the claim be limited to the expressed location of the stop and holding device, defendant does not infringe. But why should it be so limited? If the eccentric I moved the nut F it would be

within the phraseology of the claim, but it would do only what it does in its present position, and nothing more.

It was held by Judge Brown, now Mr. Justice Brown, in *Cons. Roller Mill Co. vs. Coombs*, 39 Fed. Rep., 33–4, that the patent is not so limited, and that mere change of location did not avoid infringement, citing

Ives vs. Hamilton, 92 U. S., 426.

Applying the rule laid down in *Machine Co. vs. Murphy*, 97 U. S., 125, infringement seems clear.

I shall return to this subject later, after discussing the prior art, because defendants claim that they have copied some of the Nemelka patents, rather than Gray.

Gray's Patent 222,895, is Valid.

The record contains, practically, the whole art prior to Gray. While this multiplication of references (and the complicated character of many of them), adds to the labor of understanding the case, it serves one useful purpose, viz., it shows clearly how imperfect the art was when Gray entered it.

The more I examine these references, the stronger is my belief that Gray made a great advance in the art; that he practically laid the foundation of successful roller mill building.

It seems to me that the chief value of the prior patents and publications introduced by the defendants, is to point out what must be avoided in building a roller mill.

I think it is unnecessary to examine all these references in detail.

By far the most important are three patents granted in Austria, France and England, to Lorenz Nemelka. If none of these patents anticipates Gray, his patent is undoubtedly valid.

I will therefore examine these patents at length.

LAKE (NEMELKA) ENGLISH PATENT, No. 3,328 OF 1877.

This seems to be the patent relied upon by defendant as an anticipation of the Gray patent.

It was the patent cited by the Patent Office against Gray.

It has seven sheets of drawings containing nineteen figures, most of them quite confused, and very imperfectly lettered.

In these drawings, Figs. 11, 12, 13, 14 and 15 show one machine; Fig. 19 shows another machine; Figs. 1 and 2 show a third machine, and Figs. 5 and 6 show a fourth machine.

All of these machines vary so that each must be described by itself.

The specification points out that the invention relates "particularly to means for varying the relative heights of the axes of the rollers to each other, and also their relative horizontal distances, for the purpose of producing a greater or lesser pressure of the one roller on the other."

The machine of Figs. 11, 12, 13, 14 and 15 is first described.

In this machine the movable roll is higher than the fixed roll. No spring pressure is provided, the toggle action of the movable roll holding it to its work. The pressure of the movable roll depends upon the height of its axis above a line drawn from the center of its pivot to the center of the axis of the fixed roll, and when the axes of the two rolls and the pivot of the bearing of the movable roll come in the same plane the machine is absolutely rigid, and cannot yield to compensate for a breaking strain.

The movable roll is carried in bearings *i*, "cast on the arms of levers pivoted on the shafts *k* by means of the eccentrics *l*, which form a part of or are fixed on the said shafts."

The roll is vertically adjustable by set screws *n* (which can be worked singly or together), and adjustable horizontally for parallelism by sliding brackets *t*, which form bearings for shaft *k*.

But as the movable roll must be higher than the fixed roll to permit it to rise under too great strain, both the screws *n* and brackets *t* must be shifted to adjust this pressure, and the patent

says, "and this height can be regulated according to the pressure required by shifting the brackets *t* and setting the screws *n*."

The adjustment for grinding distance is the shaft *k* with its eccentrics *l*, and the patent says:

"These eccentrics *l* are arranged for the purpose of adjusting (by means of the lever *m* keyed fast to the shaft *k*) the rolls *c* in the necessary distance apart, as required for working up the grain under operation."

This machine contains, therefore, only the adjustments for pressure, tram, parallelism and grinding distance, and the rolls can only be spread by destroying one of these adjustments.

We have seen that, even when the brackets *t* are moved, the screws *n* must also be adjusted, and that the position of the movable roll is the resultant of these two forces, and not merely the sum of their individual effects.

This is evidently a mere paper machine, not a roller mill.

The second machine of this patent is that shown in Fig. 19.

This machine has one fixed and two movable rolls, the movable rolls being hung in bearings cast on levers *m*, which, at their other ends, are pivoted on eccentrics *l*, welded on shafts *k*. As in the first machine the axes of the movable rolls must "lie a little above an imaginary line *o*, *k*, drawn from the center line of the roll (*e*) to the center line of the shafts *k*, etc."

The patent says that in this machine the sliding brackets *q*, *r*, give the horizontal adjustment for parallelism, and the eccentrics *l* the adjustment for grinding distance, and there is no spreading device whatever. The rolls can only be spread by destroying one of these delicate adjustments.

While the patent is silent on this point, it must be that both the sliding bracket *q* and set screw *n* must be moved to adjust for parallelism, as pointed out in the discussion of the first machine, and to a much greater extent, as the adjustments are oblique to the plane of the rolls.

The next machine of this patent is the one shown in Figs. 1, 2, 16 and 17.

In this machine the bearings of the adjustable roll are probably movable, though the patent does not show how. It may be that they slide on the frame.

Two peculiar levers *f*, pivoted on pins *g* running through the frame, are formed above the pivot with two arms, one of which presses against the movable roller bearing, and is tied to the bearing by a screw *h*, passing through a slot in the upper end of the lever arm, and screwing into the bearing.

The other upper arm *a'* of the lever runs backwards under an eccentric *c'* on a through-shaft *b'*, which is journaled in brackets, bolted to the frame of the machine. A set-screw *g'* in arm *a'* bears on this eccentric, and the shaft *b'* with its two eccentrics *c'* can be turned by a lever *e'*, and the lever may be fastened in any position by a bolt *f''*, whose head works in a slit cast in bearings *d'*.

The lower ends of the opposite levers *f* are pressed outwards by a single weight on a lever, acting through a step and two bell-crank levers.

In this machine there is no vertical adjustment of the ends of the movable roll.

Horizontal adjustment for parallelism can be had by the screws *g'*.

Grinding adjustment is made by through-shaft *b'* with its eccentric *c'*.

Pressure is obtained through the weighted lever *l*, a useless, impractical device, for a roller mill cannot do good work with weight pressure (Gray, p. 82). (Putnam, Q. 31–32.)

The first mention of spreading in this patent is with reference to this machine (p. 323, fol. 593), and is as follows:

"On stopping work, the pressure must be taken off and the rolls drawn back; and this drawing back is facilitated by the levers *f*, having below an arm by which they can easily be freed, and then the rolls can be drawn back by means of the screws at *h*, as shown in Fig. II."

"Under the arrangement of the double set of levers (levers *l*),

the drawing back of the rolls quickly is much easier, since only two levers have to be handled, which can be lifted without great exertion, and made fast by pins to be set into holes conveniently adapted in the brackets, as shown in Fig. I and II" (p. 323).

How are the rolls drawn back?

Turning the screws at *h* will not do it. This would only press the lever *f* more firmly against the roll.

Plainly the levers *f* must be moved. How? The patent shows and describes only two means of moving these levers.

The first is the shaft *b'* with its eccentrics *c'*. "By rotating the shaft *b'* the outside rolls will likewise be set in motion and fixed in any distance apart from the inner rolls that may be required for the work to be done" (p. 322).

But this is the adjustment for grinding distance, and, if used for spreading, this delicate adjustment is destroyed, and must be remade by the head miller.

The second is the screw bolt *g'*, arranged in the arms *a'*. By turning in these bolts the levers *f* may undoubtedly be moved.

But these bolts are the only means of adjusting the roll for parallelism, and cannot be used for spreading without destroying this adjustment.

Thus this machine does not show nor suggest Gray's combination.

The horizontal adjustment for parallelism may also be obtained by substituting for screws *g'* wedges between the bearings of the stationary and movable roll, as shown at *o*, Figs. 3 and 4.

The last machine of this curious patent is illustrated in Figs. 5, 6, 7, 8, 9, and 10, described p. 324, fol. 595 *et seq.*

In this machine the bearings of the adjustable roll are secured on the upper (short) arms of two levers *e*, pivoted on the ends of a shaft *s*.

A screw *u* threaded through the short arm of lever *e* and pressing against a head *w* on the frame serves to adjust the roll for parallelism.

No vertical adjustment (for tram) is provided.

At the lower end of levers *e* they engage with a through shaft *m* having eccentrics *n*, and this shaft is provided with a gear wheel *o*, into which meshes a pinion *p* on a crank shaft, by means of which shaft *m* and its two eccentrics *n* may be rotated.

Eccentrics *n* press against a plate *j* backed by a rubber buffer *i*, which can be compressed against plate *j*, or loosened by means of a set screw or bolt *q*.

Mr. See speaks of this patent as follows :

"In Lake's English patent No. 3,328, of '77, for Nemelka's invention, and in 'Nemelka's French Patent,' a through eccentric shaft operating through rubber springs, serves in putting on or taking off the pressure from both ends of one roll simultaneously" (p. 217).

He finds two spreading devices, viz :

"In Lake's English patent No. 3,328, of '77, in Fig. 5, the turning of the eccentric shafts *n* by the hand-levers *t* open the rolls, and in Fig. 11 and others the turning of the eccentric shafts *k* by the hand-levers quickly opens the rolls" (p. 193).

As this patent is practically defendants' whole case, I will go over the parts which defendants say relate to spreading the rolls, once more, so as to bring them together, and thus make it clearer that Gray's invention is not present in this patent.

I have just quoted Mr. See's statement of what he regards as spreading devices in this patent, and believe that I can show that both of them are intended and described as other adjustments, and have not the function and characteristic operation of Gray's device.

In the descriptive part of the specification there are just two references to spreading, as follows: "By employing such an "extent of leverage, a small weight can be used on the lever *l*, "thereby facilitating the handling of the lever when the rolls "require to be drawn back (p. 322, fol. 592).

"On stopping work, the pressure must be taken off and the "rolls drawn back; and this drawing back is facilitated by the "lever *f*, having below an arm by which they can easily be freed, "and then the rolls can be drawn back by means of the screws at "*h*, as shown in Fig. 2.

"Under the arrangement of the double set of levers (levers *l*), "the drawing back of the rolls quickly is much easier, since only "two levers have to be handled, which can be lifted without great "exertion, and made fast by pins to be set into holes conveniently "adapted in the brackets, as shown in Figs. 1 and 2" (p. 323, fol. 593.)

In these quotations Nemelka is speaking of the machine of Figs. 1 and 2, in which the movable roll is held to its work by weighted levers *l*. These levers are to be raised and fastened up, and then rolls can be drawn back by means of the screws at *h*, as shown in Fig. 2.

h is the point where the lever *f* presses on the adjustable bearing of the outside roll (p. 321, fol. 591), and the screws at this point have no other office than to connect the levers with the bearings. They are mere links by which the bearing is made to follow the backward movement of the lever in making the grinding adjustment, and without which the described mechanism could not increase the grinding distance. They pass through the levers, are tapped into the bearings, and have no connection with any part of the frame. To draw back the bearings the levers must be moved. The only described mechanism for moving the levers is the eccentric c^1 on shaft b^1 (p. 322, fol. 592), but this is the mechanism which makes the grinding adjustment, and this is destroyed by spreading.

The eighth claim of this patent is:

"The arrangement for drawing apart the rolls by means of the eccentric *l*, as described."

The fourth claim is:

"The arrangements for drawing the rolls apart or together by means of eccentrics, and the use of eccentrics as means of exerting pressure, as described."

The first of these is the eccentric *l*, of claim eight, and the other the eccentric *n*, of Fig. 5, neither of which are either in Gray's or in defendants' machines.

The "eccentric *l*," is shown and described in the machines of figures 11 and 19, but is not found in the machines of Fig. 2, the corresponding eccentric in that figure being lettered *e*.

In Figs. 11 and 19, the eccentric *l* is the device which regulates the grinding distance.

This is described as to Fig. 11, on p 320, lines 5–10, as follows: "The bearings *i* of the outer rolls *c c* are cast on the arms of "levers, pivoted on shafts *k*, by means of the eccentrics *l*, "which form a part of or are fixed on the said shafts. These "eccentrics *l* are arranged for the purpose of adjusting, by means "of the lever *m*, keyed fast to the shaft *k*, the rolls *c*, in the "necessary distance apart, as required for working up the grain "under operation."

It is described as to Fig. 19, on p. 321, as follows: "These "eccentrics *l*, *l* are designed for the purpose of enabling the "rolls *d*, *f* to be adjusted to any required distance from the not "adjustable roll *e*, by means of the levers *m*, *m*, keyed on to the "shafts *k*, *k*."

From this it is evident that in these machines the operation of spreading the rolls destroys the grinding adjustment.

The machine of Fig. 5 is described on pp. 324–5. In this description there is not one word about spreading the rolls. Most of the description refers to the arrangement of india rubber springs and eccentrics at the lower ends of the levers *e* which carry the movable rolls.

It is possible that by rotating the eccentric *n* on the shaft *m* through half a revolution, the movable roll will part from the fixed roll to a certain extent. But the specification expressly states:

"The india rubber buffers *i* are placed between the iron "plates *h*, *j*, in the box *f*, in order to obtain an equal pressure on "the fixed rolls from both sides of the adjustable rolls, and the "bolts *g* with double nuts are intended to allow accurate adjust-"ing, see Figs. 5 and 9. The rubber buffer also serves for pro-"ducing an elastic pressure on the levers, and by screwing up or "down the bolts *g*, according to the work required, the pressure "on the buffers, and, through them, by the levers and the rolls "can be increased at pleasure.

"The toothed wheel *o*, pinion *p*, and crank *t* are designed to "obtain a greater pressure through the eccentric."

What "greater pressure" is needed for spreading.

It appears from this that this arrangement at the bottom of the

levers is one which is intended to allow accurate adjustment, and that for this purpose it is provided with the adjusting screw *g*, and that the eccentric *n*, instead of being turned directly, is turned through the interposition of the large gear *o*, and the small pinion *p*, by which a very slow motion of the eccentric, and consequently a very fine adjustment, is secured.

Now whatever this adjustment is, and whatever may be its purpose, it is destroyed if this device is used as a spreading device.

There is no provision made by which, when the eccentric *n* is moved from the position from which it was when the adjustment is made, it can be absolutely returned to that same point. See what Mr. Putnam says of this device, Q. 43–4, p. 106.

I therefore submit that in this patent, that in all the Nemelka patents, there is no provision whatever for spreading the rolls without interfering with any of the adjustments.

Nemelka Austrian Patent.

This is earlier than the (Lake) Nemelka English patent. It shows two machines, that of Fig. 2 being the same as that of Fig. 11, Lake patent.

The machine of Fig. 1 has the movable roll running in bearings carried on the ends of the short arms of bent levers pivoted on eccentric *l* integral with a shaft *k*, journaled in adjustable brackets *t*. The rolls have the same toggle-joint arrangement of Figs. 11 and 19, Lake patent.

Brackets *t* and set-screws *n* together regulate the toggle-joint, as in the Lake patent, and give the adjustment for parallelism.

The lower end of the lever has the same pressure arrangement shown in Fig. 5, Lake patent.

Grinding adjustment is obtained by the eccentrics *l* on shaft *k*.

Spring pressure, if needed, can be had by cam shaft *w*. This device would be worthless as a spreading device, as pointed out about the machine of Fig. 5 of the Lake patent.

Spreading is not mentioned in this patent. It may be done, but at the expense of one of the necessary adjustments.

Nemelka's Austrian Patent No 2.

This patent speaks of the necessity of spreading the rolls, but is of no importance, for it shows no adjustments except a weight pressure, and the rolls probably run in contact.

Nemelka French Patent.

This patent shows two machines, which appear to be exactly like the two machines of the Nemelka Austrian patent.

Nemelka French Patent Certificate of Addition.

The machine of this patent is the same as that shown in Fig. 19 of the Lake (Nemelka) English patent.

Nemelka German Patent.

This patent was not issued (ausgegaben) until December 6, 1880, and therefore does not affect Gray's patent No. 222,895.

I submit that none of these machines shows the combination of Gray's fifth and sixth claims, viz: Adjustment for tram; adjustment for parallelism; adjustment for grinding distance; adjustment for spring pressure; spreading device independent of all of these adjustments and returning positively to place.

It is probably true that with the knowledge of to-day a bright expert like Mr. See could take these three Nemelka patents and from them construct a composite machine containing Gray's combination, but what of that?

It is not probable that any of these Nemelka machines were ever built.

The defendant has neither shown use of any of them nor any trade publication describing them, yet the Mechwart & Wegmann rolls are shown in publications.

Had any of these machines ever gone into use, it seems certain that such use would have been described in some milling journal.

Their design is wrong.

In all of the successful roller mills used for making flour the rolls have been arranged in a horizontal plane.

Putnam, Q. 36, p. 106.

Mr. Putnam, who is familiar with all the old roller mills—Mechwart (X Q. 136, p. 117), Daverio (Q. 13, p. 100), Wegmann (Q. 79, p. 111)—and with nearly, if not all, the modern mills, says that he never saw or heard of a Nemelka machine being used; that it would not be a practical machine, and gives his reasons.

Q. 39–44, p. 106.

One thing is certain: No Nemelka patent shows or describes the adjusting rod G of the Gray patent, or anything like it.

The decision of this court in *Tilghman vs. Proctor*, 102 U. S., 712, on the Manicler patent seems to fit these Nemelka patents exactly.

"Evidently, therefore, this was but an abandoned experiment, since we never hear any more of it from 1826 down to the trial of this cause."

And again: "But we have no evidence that the process was ever successful in practice."

DAVERIO ITALIAN PATENT.

DAVERIO ITALIAN PATENT OF ADDITION.

SIMONS (DAVERIO) ENGLISH PATENT.

These patents are not worth discussion.

The defendants made the mills of these patents before they began to infringe, but they proved worthless, and were abandoned.

Putnam, Q. 34, p. 105; Q. 37–8, p. 106.
Miller, Q. 39, 40, p. 66.

Mechwart Patents.

U. S. patent No. 251,124, December 20, 1881, is too late to be a valid reference to Gray 222,895.

His Austrian patent (p. 300) is mainly devoted to showing and describing a belt drive. The rolls probably run in contact, and are held together by a weight.

His English patent (No. 563) of 1878 has no bearing on this case.

Die Muhle of 1875.

This is merely a poor cut of a machine with practically no description.

It shows no adjustments except spring pressure and possibly grinding distance, even with the knowledge of to-day.

It is said to represent a Wegmann machine. If so, it may be the machine which Allis & Co. built, and were obliged to abandon.

There are several decisions at circuit holding that a cut without a description is not a printed publication within the meaning of the statute.

Rees vs. Keystone Bridge Co., 1 O. G., 466.
Adams vs. Edwards, 1 Fish, 1.
New Process Fermentation Co. vs. Koch, 29 O. G., 535.
Judson v. Cope, 1 Fish, 615.

I believe that these are all of the references which will be urged against Gray 222,895.

All of the references are considered separately and carefully by Mr. Smith, pp. 121–144, and I do not feel at liberty to extend this brief to review those which I have not mentioned.

The impression that these references, together with the Dingler model, the Nagel & Kaemp machine and the Schacht machine made upon his Honor, Judge Brown, was that:

"None of these prior patents, except Lake's, contain a suggestion of the underlying principle of plaintiff's patent, and are

chiefly valuable as showing the extremely imperfect state of the art at the time when Gray made his application."

39 F. R., 32.

And as to the Lake (Nemelka) patent, he thinks it very doubtful whether it was ever intended or susceptible of anything more than the regulation of the pressure.

Whom Have Defendants Copied?

Now let us see whether the defendants have copied Gray, or these older machines.

The fifth claim of the Gray patent is: "In combination with the roller bearing, the adjusting rod provided at one end with a stop to limit the inward movement, a spring, and means for adjusting the latter, and provided at the other end with a stop and holding devices, substantially as shown and described."

The rod G of the Gray patent is simply a device which, secured at one end to the frame of the machine and at the other end to the movable bearing, holds the bearing in fixed relation to the frame, except under abnormal pressure, when the spring permits the bearing to yield.

In defendants' machine there is the movable bearing which is pivoted on the eccentric H^1, carried on the shaft I. Of course when an eccentric is stationary, it is a mere circular pivot, and operates only as an eccentric when it is itself rotated. The upper end of the arm which carries the movable roll is held in position by a spring which encircles a rod running through an extension in the arm, and through a nut in the frame. This rod is encircled by a spring precisely as is the rod G of the Gray patent, and it is the action of this rod through the spring on the frame at one end and the roller bearing arm at the other end which governs the distance between the rolls. Provision is made for tramming the rolls by means of vertical set-screws which raise the roller bear-

ings on the arm. In this machine, therefore, the vertical elevation of the movable roll is adjusted by set-screws, the parallelism of the rolls is adjusted by horizonal set-screws, and the grinding distance is adjusted by a spring-encircled rod which connects the movable bearing with the frame of the machine. Thus all the adjustments are provided for, and in addition to these there is an eccentric H', which operates independently, which has a fixed range of motion, governed by the stop Z, and which spreads the rolls without affecting any of the other adjustments. We have, therefore, in this machine, a spreading device separate from and independent of all the adjusting devices. From this I reason that in making this machine the defendants have copied Gray, who has this device, and have not copied the older machines which were without it.

JUDGE BLODGETT'S OPINION.

I have great respect for the ability of the learned district judge who decided this case below.

In this case, however, I think that he made a mistake through not fully comprehending Gray's invention.

In discussing this patent he thus analyzes the Gray patent:

"Gray, in his first patent, provided for four adjustments, or "what may be called adjustments.

"*First*—The vertical adjustment, which was intended to bring "the axes of the rolls into the same horizontal plane, which is not "in question here.

"*Second*—The adjustment of the surface of the rolls to paral- "lelism, that is, bringing their grinding surfaces parallel to each "other so that they would grind uniformly their entire length. "This is called 'tramming' in the proofs, the word being "imported into this art of milling from the older art of grinding "with millstones, where it was necessary to bring the grinding "surfaces of the stones into perfect parallelism with each other in "order that they might grind uniformly all the grain that passed "between them.

"*Third*—The device for spreading the rolls apart or throwing "them out of working position to prevent their becoming wedged

"or bound by the grain dropping between them without disturb-
"ing their adjustment for parallelism or their vertical adjustment.

"*Fourth*—And adjusting the pressure of the spring so as to
"hold the rollers with sufficient rigidity together for the purpose
"of grinding and at the same time allowing them to yield when
"any unusually or unexpectedly hard substance should come
"between them.

"And the devices of his patent which are here brought in
"question all have reference to these adjustments."

It will be noticed that in this statement the learned judge entirely omits the adjustment for grinding distance, and that he confuses the adjustments for tram and parallelism.

Gray shows one mechanism capable of making this adjustment and also the horizontal adjustment for parallelism, but both adjustments must be in his machine.

The distinction may be well illustrated by the Lake patent, Fig. 11, in which the shaft *k* with its eccentric *l* is the adjustment for grinding distance, but cannot bring the rolls parallel because it cannot move the ends of the roll separately. And in the same figure the sliding bracket *t* in connection with the set-screw *n*, adjusts the rolls for parallelism, but cannot be used for adjusting the grinding distance, first, because of the double adjustment necessary, and second, because of the danger of loosening the bracket when the mill is running, and this adjustment cannot be made when the mill is still.

In discussing the spreading device the learned judge seemed to forget its capacity for positive, absolute return to a fixed point, and the fact that the spreading device did not destroy or vary any adjustment.

Now, if the adjustments provided by Gray are cut down by ignoring the grinding adjustment, and if the peculiar characteristic and independence of his spreading device be eliminated, a different combination is presented, having fewer elements.

I think that the difference between the opinion in this case and that in the Coombs case lies entirely in the fact that in this case one adjustment was ignored, and the peculiar character of

another forgotten, while in the Coombs case Gray's invention and combination were understood as they really exist.

Gray's Place in this Art.

I submit that on the proofs in this case the art of milling with rolls was made possible in this country by Gray.

The only roller mills which preceded his invention were the Ganz (or Mechwart), Wegmann, and Daverio.

All of these were introduced into this country, and proved too imperfect for use.

The defendants themselves made and abandoned the Daverio machine.

So far as the record shows, these are all the roller mills ever used prior to Gray's invention.

(I omit the Dountin smooth roll as not being a true roller mill.)

Gray was the first man who ever made a roller mill suitable for American milling.

"Q. 24. What was the first roller mill introduced into this "country, the perfection of whose parts met the requirements of "the American miller? A. The Gray roll."

Putnam, p. 101.

The Gray mill was the first one good enough to supersede millstones.

"Q. 39. Do you know of any roller mill prior to the invention "of Gray that was capable of doing its work well enough to have "led to the general substitution of the roller mill for millstones? "A. I do not.

"Q. 40. What occurred in the milling trade after the introduction of the Gray roll? A. They superseded the millstone "very rapidly."

Freischmidt, pp. 74–5.
Putnam, Q. 56, p. 108.
Gray, Q. 11, p. 79.

And here I would note that these witnesses are all practical men, testifying from practical knowledge, not from theory, and

none of them having any interest in this case. Miller was head miller in Pillsbury mill B and Anchor mill, of Minneapolis, having a joint capacity of 3,500 barrels per day. Freischmidt was head miller for Sanderson's Phœnix mill, of Milwaukee, with a capacity of 1,500 barrels, and Putnam was head miller for the Cleveland Milling Company, of Cleveland, O., with a capacity of 2,000 barrels, while Mr. Gray is in charge of the building all their flour mills and flour mill machinery put up by Allis & Co., of Milwaukee, the largest mill builders in the world.

We have reason to confide in the selection of only first-rate men by such houses, and no attempt has been made to contradict a single statement made by either of them.

Just as Watt really invented the steam engine, despite the machines of Papin, Savery and Newcomen; just as Bell invented the speaking telephone, in spite of Reis' previous electrical transmission of sound—so Gray invented the roller mill, and the art is to-day founded on what he did.

Before Gray there were apologies for roller mills, but flour was made almost entirely upon millstones in this country.

After Gray millstones still exist, but the flour of this country is principally made with rolls.

Should not such an invention be protected?

"Under such circumstances courts have not been reluctant to sustain a patent to the man who has taken the final step which has turned a failure into a success. In the law of patents it is the last step that wins."

The Barbed Wire Patent, 143 U. S., 282.

If it be true that Gray invented nothing this case is unique.

So far as I know there is no instance where the first successful, practical machine in an art, which stands confessedly as the first machine capable of superseding the older practice, has been held to be a mere adaptation without invention.

If there is no invention here, it is the first case of the kind.

Gray's Austrian Patent.

This patent seems to apply to a belt drive for roller mills.

The rolls are said to have spikes driven in them.

If there is any adjustment for grinding distance it is the "small evolute cam (conical wedge screw) Y."

Smith, p. 130.
See, p. 199.

Therefore the use of these wedge-screws to spread the rolls, as stated in the fifth clause of the claim, destroys the grinding adjustment.

Claims 1, 6, 7 and 8 refer to the belt drive details.

Claim 2 to a disintegrator on a counter-shaft.

Claim 3 to self-oiling boxes.

Claim 4 to boxes sliding in a groove in the frame.

Gray's German Patent.

The three claims of this patent refer to a belt drive and a disintegrator on the countershaft.

The spreading device and grinding adjustment are the same.

I submit that the invention of patent No. 222,895 was not "first patented" abroad by either of these patents.

Guarantee Ins. Co. vs. Sellers, 123 U. S., 276.
Holmes Electric Co. vs. Met. Co., 32 O. G., 384.

As patents are granted for a term of fifteen years, both in Austria and Germany, subject to lapse for non-payment of taxes, Gray's patent would still be alive even if his invention was first patented abroad.

Pohl vs. Anchor Brewing Co., 134 U. S., 385.

Gray Patent No. 238,677.

This patent shows and describes a roller mill substantially identical with that of the Gray patent 222,895, except in the spreading device, but having four rolls instead of two.

The spreading device is an eccentric shaft I carrying two eccentrics H, by which the two ends of a roll are spread at one motion, and each of these shafts is provided with an arm J to which a rod K is connected, so that moving rod K simultaneously moves both ends of the movable rolls.

The mechanism for simultaneously moving both ends of two rolls forms the combination of the second claim, and that for moving the two ends of one roll simultaneously forms the subject of the third claim.

The court below held these claims anticipated by the Nemelka French patent.

The spreading device of this patent differs from anything shown or described in the Nemelka French patent, in that it operates "without destroying the adjustment of the parts which control the exact position of the rolls when they are in action" (p. 173).

The Nemelka French patent shows an eccentric shaft for moving both ends of a roll simultaneously to adjust the grinding distance, and in view of this and Gray's patent 222,895, it may be claimed that the third claim shows little or no patentable invention.

The second claim, however, covers a combination which is very convenient in actual practice.

It saves time, and time is money in milling.

Mr. Putnam testified more fully as to the value of this improvement. He says, after referring to the spreading device of No. 222,895:

"This important feature was entirely original, and was a great convenience in the operating of rolls, but it will be noticed that this means only provided for the throwing open of one end of the roll at a time. Subsequently in the operation of rolls the necessity of being able to handle rolls more economically as to employes was recognized by the addition of a through rod shown in patent 238,677, Figs. 4 and 5, which rod carried two eccentrics, to which eccentrics the rod G was attached. By this means the operator could, by pushing back the crank J, release simultaneously both ends of one roll, thus very much reducing the amount

of labor required to stop and start large mills. In double roller mills, where four rolls are in one frame, the inventor has added a thrust rod K, shown in Fig. 4, which attaches to the ends of the cranks J, and by this means the operator passing along one side of the line of rolls may, by pushing back the thrust rod K, operate the spreading device of the entire frame. This is the most perfect spreading device known in roller milling, and its value is very much enhanced by the consideration that in its operation the adjustments are not disturbed, but by the simple pulling back into position of the thrust rod K, the rolls will be brought instantly into grinding position again and require no further attention" (p. 103).

Infringement.

The defendants clearly infringe the second claim. They have simply made the eccentric shafts move the lower end of the swinging arm instead of the upper end. They have all the elements of the claim, and perform exactly the same work that Gray's combination does.

Defenses.

It is claimed that this patent is anticipated by Nemelka's French patent, Daverio's Italian and German patents, Die Muhle of 1875, Dingler's Polytechnic Journal, Pappenheim, Kick, and Scientific American Supplement.

None of those patents or publications show any spreading device in which two eccentric shafts are coupled together by a single rod which actuates them both, and so none of them anticipates this claim.

The most pertinent reference is Gray's former patent 222,895.

Did it require invention after 222,895 to produce the combination of claim 2 of this patent?

To this I can only answer that so expert a mechanic as Gray did not see this combination when he invented the mill shown in No. 222,895; that nobody before him is shown to have so coupled up two eccentric shafts; that by this patent he gave the

trade "the most perfect spreading device known in roller milling"; and that the defendants have paid Gray the compliment of appropriating it bodily.

ODELL REISSUE No. 10,139.

This patent seems to have been sued on because it was infringed by defendant's No. 1 mill.

That mill has been abandoned, and I do not think that defendant's No. 2 mill infringes.

BIRKHOLZ No. 269,623.

This patent I do not care to press.

It is so nearly like defendant's mill No. 2 that its validity seems to me doubtful in view of Gray No. 222,895, and I do not feel at liberty to ask the court to study a patent in which I have so little faith.

In conclusion I respectfully submit that:

The Gray patent No. 222,895 discloses, and by its fifth and sixth claims covers a very important invention in the art of building roller mills.

That the originality of this invention has not been successfully attacked.

That the defendants Barnard & Leas roller mill No. 2 infringes these claims.

That as to this patent the decree below should be reversed.

That the second claim of the Gray patent No. 238,677 covers a combination of mechanism novel with Gray, useful in effect, and embodying sufficient invention to support a patent.

That as to this claim the decree below should be reversed.

GEO. H. LOTHROP,

Counsel for Appellant.

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Supreme Court of the United States.

OCTOBER TERM, A. D. 1893.

No. 363.

THE CONSOLIDATED ROLLER MILL COMPANY,
Appellant,

vs.

THE BARNARD & LEAS MANUFACTURING COMPANY
Appellee.

BRIEF FOR APPELLEE.

STATEMENT.

This is an appeal by the complainant below from a decree of the Circuit Court for the Northern District of Illinois, entered by his Honor, Judge Blodgett, dismissing the bill for want of equity. (See Judge Blodgett's opinion, quoted *post*, p. 4; Decree, Rec., p. 31.) A petition for rehearing was filed, heard, and overruled. (See Rec., pp. 31–34.)

The bill of complaint, as originally filed, charged infringement of four patents, all purporting to relate to means for effecting the adjustment of the rolls of grinding mills to or from working position, namely:

Patent No. 222,895, granted Wm. D. Gray, December 23, 1879; patent No. 238,677, granted same, March 8, 1881; reissue No. 10,139, granted Udolpho H. Odell, June 20, 1882, as a reissue of patent No. 250,954, granted

same, December 13, 1881; and patent No. 304,468, granted John Stevens, September 2, 1884.

After the answer was filed the Stevens patent was withdrawn. During the pendency of the suit complainant, by amendment, introduced patent No. 269,623, granted Hans Birkholz, December 26, 1882, charging the defendant with infringement of that patent.

The only claims which complainant's expert seeks to construe as covering any machine of defendant are the fourth claim of the Gray patent No. 222,895, the second and third claims of the Gray No. 238,677, the second claim of the Odell reissue, and the first claim of the Birkholz patent. The bill of complaint charges that machines manufactured and sold by defendant severally combined in their structure inventions claimed in the several claims of all these patents, "thus infringing in a single machine said letters patent No. 222,895, 238,677, 304,468, 269,623, and said reissue No. 10,139."

This (which was necessary to enable the complainant to combine these distinct patents in a single suit) was traversed in the answer. When it came to taking proofs, complainant did not pretend to find infringement of the several patents in a single machine. It charged, through its expert, that different machines manufactured by defendant infringed different patents.

These patents all relate to minor modifications in the mechanical means of effecting the usual adjustments of roller mills. None of them introduce any adjustment that was not before common to roller mills; nor do any of them introduce any means of effecting such adjustments other than those which were common in roller mills or analogous machines for a similar purpose.

So far as the claims in controversy are concerned, they have not even aggregated in one mill any adjustment

that had not before been united in single mills and effected by the same mechanical agents or their familiar equivalents. They have not imparted to any of the agents for effecting these adjustments any modification that is not found in the same agent as used for the same purpose in roller mills.

The defendant below (appellee here) denied the validity and patentability of each of the claims relied upon by complainant; denied that it had infringed either of them; and insisted that whatever resemblances may appear between its machine and those of the several patents in suit were due to the fact that each has retained the ordinary adjustments and means of effecting them common in prior roller mills, and before described in the standard literature of the art, from which complainant's patentees copied closely all the substantial features and organizations of the machines shown in their patents, including those recited in the claims, while the mechanical details of construction for which alone the claims in controversy were allowed (though, as defendant believes, none of them were novel or patentable), have been left in the undisturbed possession of the patentees.

It was further insisted that the Gray patent No. 222,895 had been held invalid for want of patentable novelty, by a decree to which this complainant was privy (in *Allis v. Freeman*, in the Circuit Court for the Western District of Wisconsin); that, when the complainant carried that cause to the Supreme Court on appeal, and the appeal was about to be heard, this complainant, having meanwhile assumed control of the case, dismissed the appeal and acquiesced in the adverse decision, which was thereby made final; that, when complainant thus confirmed this decision, the public was entitled to treat it as determining the assertion of monopoly under that patent and to act

accordingly, and complainant cannot years afterwards revive this patent by a new suit; that complainant was not, under such circumstances, entitled to equitable relief, irrespective of whether it would be concluded in an action at law or otherwise; that unless the claim in controversy is limited to a tie-rod, which (as described and shown in the patent) is the spreading agent and means of restoring to working position, it is not included in substance or by implication in the application as sworn to, but was new matter afterwards injected by the solicitor and invalid, and if construed as consonant with the sworn application, or with the terms of the patent, it was clearly not infringed; and that the patent (at least so far as the claims now in controversy are concerned) had expired before the commencement of this suit, and before the acts of defendant complained of, by reason of the expiration of an earlier foreign patent to the same patentee.

Complainant is not a manufacturer of or dealer in roller mills or machinery of any kind. It is a company organized primarily and apparently solely for the purpose of offensive litigation, levying tribute upon mill users, and intimidating the vendees of all manufacturers outside the four companies (located respectively in Buffalo, Indianapolis, Dayton and Milwaukee) by which it was organized.

Complainant's title under the patent sued upon and its right to relief in a court of equity were both denied.

A special demurrer challenging complainant's rights to equitable relief on the facts shown in the bill was promptly interposed but overruled. (Rec., p. 9–10.)

The opinion below is as follows (Rec., p. 25):

> "The bill in this case, as amended, charges the the infringement by defendant of patent No. 222,895, granted December 23, 1879, to William D. Gray, for 'an improvement in roller grinding mills;' pat-

ent No. 238,677, granted March, 8, 1881, to the said Gray, for a 'roller mill for grinding grain;' reissue patent No. 10,139, granted June 20, 1882, to W. H. Odell, for a 'roller mill,' the original of said last-named patent having been granted December 13, 1881, and patent No. 269,623, granted December 26, 1882, to Hans Birkholz, for a 'roller grinding mill.'

"While the bill charges infringement of each of these several patents in general terms, the complainant's proof limits the charge to the infringement of the fourth, fifth and sixth claims of Gray's patent No. 222,895;

"Second and third claims of Gray's patent No. 238,667;

"Second claim of Odell's reissued patent No. 10,139;

"First claim of Birkholz's patent 269,623.

"All these patents are intended to be applied to machinery for the purpose of grinding grain by means of rollers in place of millstones, introduced into the country at a comparatively recent date.

"It is conceded that the process of grinding grain by means of rollers as a substitute for the immemorial millstones originated in Europe, and that the device therefor had been brought to an approximately successful operation long before they were adopted in the United States. Hence all the patents in question here are for what are claimed to be improvements on the roller mills of Europe as our manufacturers found them developed and in use there.

"The Gray patent No. 222,895, granted December, 1879, is said in the specifications to relate to roller grinding mills and to consist of a peculiar construction and arrangement of devices for adjusting the rolls vertically, as well as horizontally, whereby any unevenness in the wear of the rolls or the journals or parts may be compensated for and the grinding or crushing surfaces kept exactly in line.

"The invention also consists in the device for separating the rolls, when not in action, without disturbing their parallelism.

"Only those portions of the devices covered by

this patent which provide for the lateral adjustment of the surfaces of the rolls, so as to secure the parallelism of their surfaces, and which provide for the separating of the rolls from their working position without disturbing their parallelism, and the feature which regulates the working pressure of the rolls are in question here.

"The proof shows that it was common in the European roller mills before Gray's device was produced to secure this element of adjustability by setting one of the rollers in fixed journals, while the other roller was set in a movable sliding or swinging frame, so as to be capable of such vertical and horizontal movement as to allow the requisite vertical and horizontal adjustments.

"Finding the mechanism in this stage of development—that is, with one movable roller—and without considering for the present any of the devices older than Gray's for securing the desired parallelism of the surface of the rollers, Gray by this patent secured this adjustment of parallelism of surface by means of two rods, G, extending horizontally from the ends of the fixed roller frame to the swinging frame which holds the movable roller, and these rods, being screw-threaded at some distance on each end, allowed the desired adjustment for parallelism to be made by manipulating nuts upon these ends so as to draw and hold the movable rolls into the right relation to the surface of the fixed roller; and, in order to allow the movable roller to yield or give way in case a hard substance like a wire, nail, or gravelstone should get between the grinding surfaces, spiral springs are interposed between the bearings of this roll upon these adjusting rods and the point where they are attached to the swinging frame. It had also been found in practical use before Gray entered the field that when the mill was stopped, with some grain yet in the hopper, the grain would fall into the space between the rolls, where it would rest and act as a wedge or brake to greatly retard, if not prevent, the starting of the mill again, and provision is therefore made for separating the rolls without disturbing their grinding adjustment for parallelism by

means of nuts upon the threaded ends of the rods G, where they are attached to the frame which holds the stationary roller, or by cams or eccentrics working upon the ends of these adjusting rods.

"These features of the patent are covered by the fourth, fifth, and sixth claims, which are:

"'4. In combination with the movable roller-bearing, the rod G, adjustable stop devices to limit the inward movement of the bearing, an outside spring urging the bearing inward, and adjusting devices, substantially such as shown, to regulate the tension of the spring.

"'5. In combination with the roller-bearing, the adjusting rod provided at one end with a stop to limit the inward movement, a spring and means for adjusting the latter, and provided at the other end with a stop and holding devices, substantially as shown and described.

"'6. The combination of the bearing D, rod G, nut I, spring H, nut *j*, stop *n*, and nut *o*.'

"The feature of the Gray patent No. 238,677, which is in controversy here, is the provision for working the eccentrics to which the ends of the rods G of the first mentioned patent are attached, where those rods are fastened to the frame which holds the stationary roll, by means of the rod or shaft which connects the two eccentrics and enables the operator to work these two eccentrics by one movement of this connecting-rod, so that both the rods G are equally extended or shortened by the motion of this rod, thereby throwing the rolls apart so that the grain may drop through between them without wedging the rolls when the mill stops, and drawing them together again in their grinding position when the mill is put in motion, instead of requiring the operator to manipulate separately the nut or cam on the end of each rod G for such purpose.

"These characteristics of this patent are covered by the second and third claims, which are:

"'2. In combination with the swinging roll supports E and the rods G connected thereto, the eccentrics H, shafts I, and rod K.

"'3. In combination with the movable roll sup-

ports E and the rods G adjustably connected thereto, a transverse shaft, I, provided with two eccentrics connected to the rods G at opposite ends of one roll, whereby the roll may be thrown into and out of action instantly without changing the adjusting devices.'

"The feature of the reissued Odell patent No. 10,139, in controversy here, is a device for throwing the two sets of rolls in a double roller mill apart from their grinding position and bringing them together again by the movement of a single lever or bar—

"This lever being so arranged as to work simultaneously with the rod or cams of the rods G or their equivalents in the first Gray patent, and this feature of the patent is covered by the second claim, which is—

"'2. In a roller mill the combination, with the adjustable rolls and journals, of transverse shafts *h*, a through shaft, J, link mechanism connecting the shafts, and a single hand lever, K, connected with the through shaft for simultaneously adjusting both sets of rolls by a single lever movement, substantially as desribed.'

"The Birkholz patent No. 269,623, so far as in question here, shows a frame having a fixed or stationary roller with a swinging frame or casing pivoted to the fixed frame carrying the other roller, and a transverse rod like Gray's rod, G, whereby the distance of the roller and swinging frame or movable roller from the fixed roller can be adjusted by means of nuts working on this rod, and a spring at one end of the rod to relieve the rolls in case any unusually hard substance comes between them.

"This feature is covered by the first claim of the patent, which is—

"'1. The combination, substantially as before set forth, of the fixed roller supporting standard, the movable roller-carrying casing pivoted thereto, the adjustable gauge rod, the nut thereof, held by the standard, and the spring connected with said rod and adjustable in tension independently thereof.'

"The defenses insisted upon are—

"'1. Want of patentable novelty in the claims of which infringement are charged.

"'2. That the defendant does not infringe.'

"I have already said that when Gray entered the art he found already there methods of adjusting the rolls so as to bring their axes into the same horizontal plane and methods of adjusting the parallelism of the surface of the rolls.

"I may add he found also methods of separating the rolls so that they would not bind or be wedged by the grain dropping between them when the rollers were at rest, which separation did not disturb their parallelism, and the material questions are whether Gray's mode of securing these several adjustments are new in the art, and if they are found so, then whether the defendant has copied Gray or the older machines. I do not deem it necessary to analyze all the prior devices put in evidence by the defendant, and which, it is claimed, show the same adjustments accomplished prior to Gray's invention by other inventors, it being, as I think, sufficient to consider the Nemelka Austrian patent and the Nemelka French patent of 1875 and the Nemelka-Lake English patent of 1877, together with some casual reference to the other patents and descriptions found in the record. Gray, in his first patent, provided for four adjustments, or what may be called adjustments:

"*First.* The vertical adjustment, which was intended to bring the axes of the rolls into the same horizontal plane, which is not questioned here.

"*Second.* The adjustment of the surface of the rolls to parallelism—that is, bringing their grinding surfaces parallel to each other so that they would grind uniformly their entire length. This is called 'tramming' in the proofs, the word being imported into this art of milling from the older art of grinding with millstones, where it was necessary to bring the grinding surfaces of the stones into perfect parallelism with each other in order that they might grind uniformly all the grain that passed between them.

"3. The device for spreading the rolls apart or throwing them out of working position to prevent their becoming wedged or bound by the grain

dropping between them without disturbing their adjustment for parallelism or their vertical adjustment.

"4. And adjusting the pressure of the spring so as hold the rollers with sufficient rigidity together for the purpose of grinding and at the same time allowing them to yield when any unusually or unexpectedly hard substance should come between them.

"And the devices of his patent which are here brought in question all have reference to these adjustments.

"An examination of the Nemelka devices as exhibited in his Austrian and French patents and in the English patent to Lake and in the model of the French Nemelka patent, which is before the court and was used upon the hearing, shows that each of these adjustments is provided for in those patents and by substantially the same instrumentality which were adopted by Gray, although somewhat differently placed or modified. For illustration, Gray provided for the vertical adjustment by a cam or eccentric working upon the pivot by which the swinging arm carrying the movable roller was attached to the frame, while Nemelka accomplished his vertical adjustment by a screw worked by a worm, which for the purposes of the question here must, I think, be considered the equivalent of Gray's cam or eccentric. Nemelka also showed a swinging frame carrying a movable roller, with a cam working upon the pivot by which the swinging frame was fastened to the fixed frame, by means of which the rolls could be separated without disturbing their parallelism, and a provision for adjusting the rollers to parallelism by sliding the pivoted attachment upon the fixed frame.

"He also shows a spring to hold the movable roll to its grinding position and pressure, with means for regulating the pressure of the spring and the grinding distance by means of cams, screws, and nuts, and I cannot resist the conclusion that all which Gray did by his first patent, under consideration, was to secure the same adjustments which are shown in these prior machines by in many respects the same instru-

mentality, but differently located, or well-known equivalents of such instrumentalities.

"The special feature of Gray's second patent, by which his two rods G are moved inwardly and outwardly by the operation of the cam to which they are connected at their inner ends, whereby the rolls are thrown apart without disturbing their grinding adjustment, is also shown in the Nemelka French patent, and it is there accomplished by the use of cams, not working upon the ends of transverse rods like Gray's rods G, but working upon the pivots by which the swinging frame is pivoted to the fixed frame, these cams being connected so that they were operated simultaneously by a movement of this shaft; so that I find in these older devices all that is covered by the two patents to Gray.

"The Odell patent shows only a device for separating the two sets of rolls of the double roller mill by one movement, and I am compelled to say that I cannot conceive that it required invention to connect the shaft by which the cams in one movable roll were operated simultaneously with the cams of the other movable roll in a double mill. The ordinary and well-known device by which all the bolts in an iron safe door are shot by the movements of a single lever seems to me to fully anticipate whatever there is in the second claim of this Odell patent, all of which is fully explained by the testimony of defendant's expert witness.

"The Birkholz patent seems to me to be only another form of Gray's first patent. I see nothing in his connecting his swinging frame by his rod F to essentially differentiate that device from the device shown in the first and second patents of Gray, except that he shows only one rod and locates that below the rolls instead of above, which does not seem to me is a patentable difference; but if there were room for doubt in the question whether there is any patentable difference in the device of Gray and of Birkholz, I shall be constrained to find from the proof that the defendant does not infringe this patent, as I can find nothing in the defendant's

structure which corresponds to the rod F, either in function or location.

"I will say further that if I deemed it necessary to enter upon that field of the case, I think it is fully demonstrated from the defendant's proof that the defendant's devices for securing the adjustments in *their* mill, substantially the same as are secured by Gray, so far as differ from Gray's as that no infringement can be charged against the defendant. The defendant's mill, No. 2, contains a swinging frame carrying the movable roll, but does not contain the rod G of the Gray patent with the cam operating upon the end of it, and does not secure the spring pressure to hold the roll in working position by a spring located upon such rod. The defendant secures the movement of separating its rolls without disturbing their parallel or vertical adjustment by a cam located in the pivot, by which the swinging arm is attached to the frame, while Gray gets his movement by what is practically the elongation of his rods G by means of the cams at their ends.

"I have been very much embarrassed in the examination of this case by the opinion of the learned judge of the Eastern District of Michigan in the case of this complainant against Coombs, reported in 39 Fed. Rep., 25, decided in May last. I have carefully examined that opinion and the proofs which were submitted to the court in the case, sincerely hoping that I might be enabled to arrive at the same conclusion with the learned judge who tried that case, as I think no one is more anxious than myself to preserve and act upon the rule of comity which, it seems to me, should prevail between the Federal Courts in cases involving the same patents, but, after mature and careful consideration, I feel constrained to say that my reading of the prior art satisfies me that Mr. Gray in effect invented nothing; he merely adopted well-known equivalents for the mechanism known and shown in the prior art for producing the same adjustments which are secured by his machine and operating substantially the same way; and I do not see that Gray, from the proof before me, has any right to be claimed as an original inventor and

entitled to invoke the doctrine of equivalents in regard to his mechanism in any respect.

"He came into the art at so late a date, and when others had covered the same ground which he attempted to cover, that if his patents are to be sustained at all they are to be sustained only for the special devices which he shows and which I am clear the defendant in this case does not infringe. I may further say upon this point that the rule of comity, perhaps, ought not to be invoked by the complainant here to the same extent as in most cases where it has been applied, for the reason that in the case of this complainant against Freeman, heard before the learned district judge of the Western District of Wisconsin several years since, that court, upon the testimony which is now before this court, in these French and English patents, held that Gray's patent was invalid for want of novelty and dismissed that case; so that we have here a decision in this circuit against the complainant pressing with equal binding force upon us as does the decision relied upon by the complainant from the Eastern District of Michigan.

"The bill is dismissed for want of equity."

Gray Patent, No. 222,895. (December 23, 1879.)

Subject of Controversy.

This patent has seven claims. Complainant's expert charges infringement of only the fourth, and to support his argument of infringement under this he has to eliminate from the claim the essential characteristics of the combination on which the patent was allowed (including qualifications that were introduced after rejection in the Patent Office as a condition of allowing the claim), for they are not found in defendant's machine, which is built after a type much older than this patent and adheres in respect to the adjustments in controversy to the plan of the older machines.

This patent had been in litigation, prior to this suit. In 1881, Edward P. Allis (from whom complainant claims to have subsequently derived title to this patent, and who was at the time of commencing this suit one of the principal stockholders of the complainant) filed a bill of complaint in the Western District of Wisconsin against A. A. Freeman, of that district, charging infringement of this patent and of two subsequent patents granted to the same Wm. D. Gray. The answer and proofs in that cause denied the validity of the patent sued upon, and while not in terms admitting infringement did so by implication. (See Bill, p. 7, Addition to Rec.: and Answer, same, p. 11, particularly clauses 6, 7, 8, 9, 11, and 12.) After proofs taken (the proofs for defendant being mainly prior patents and publications), the cause was argued for complainant by Benjamin F. Thurston and W. G. Rainey, andf or defendant by John W. Munday and Edmund

Adcock. After being held under advisement for some time, a decree was entered finding for defendant as to each of the patents and dismissing the bill. While no written opinion was filed in the case, the issue on which the opinion rested was stated in writing by his Honor, Judge Bunn (by whom the case was decided), in a letter to counsel written simultaneously with entering the decree, that letter being as follows :

"MADISON, August 16, 1884.

"MUNDAY, EVARTS & ADCOCK, CHICAGO.

"*Dear Sirs:*—I have to-day decided the case of of *Allis* v. *Freeman* in favor of defendants. The conclusion reached in each of the three patents is that in view of the state of the art at the time they were issued to Mr. Gray, they do not cover any patentable invention. I have hesitated a good deal about coming to this conclusion, more especially as to the first patent (Complainant's Exhibit A), which is for the device for adjusting the rolls, but after some study, the best judgment that I can form is that the previous patents, and particularly the English patent to Lake, covers substantially all that is included in the Gray patent, and that the changes are of a mechanical character not involving invention. The order will be for the dismissal of the the complainant's bill with costs.

"Yours truly,

"ROMANZO BUNN."

(See affidavit and letter, pp. 16, 17, Add. to Rec.)

The complainant appealed the case to the Supreme Court. The appeal was perfected and the transcript filed. It was kept pending until the term at which it was liable to be reached, when this complainant (which claimed to have meanwhile succeeded to the title of complainant in that cause, and which had brought this suit and taken its opening proofs herein) appeared in the Supreme Court by its counsel (the counsel who was then [redacted]

conducting this suit) and dismissed the appeal, thus electing to acquiesce in the decree below adverse to the patents rather than to hazard the opinion of the Supreme Court upon their validity in a case in which the issue was directly presented and rested upon documentary evidence, the authenticity of which was not open to question.

Subsequent to the commencement of the suit against the Barnard & Leas Manufacturing Co., and prior to the dismissal of the appeal above referred to, this complainant (a corporation located in Chicago) commenced suit in the Sixth Circuit, in the Eastern District of Michigan, against Wm. A. Coombs, who was using one roller mill purchased of the Richmond City Mill Works, a manufacturer and dealer within the Seventh Circuit (the same in which complainant is located), charging him, by reason of the use of that mill, with infringement of four patents, this Gray patent being one of the four, the other three being the Wescott & Karns patent No. 258,832, May 30th, 1882, Dowling patent No. 289,518, of December 4th, 1883, and Marmon patent No. 274,508, March 27th, 1883. The validity of all the patents in suit was attacked. The cause was argued before his Honor Judge Brown in February, 1889. The feature of this Gray patent upon which the main stress was laid in the Coombs case was the use of an eccentric for adjusting the rolls to parallelism or "tram," and it was this which his Honor Judge Brown in his opinion treated as the distinguishing feature of the patent. It is not pretended that this feature is in the present defendant's machine, and the court in the present case was asked to sustain the patent with a broader construction, so as to disregard the absence of the element principally relied on before his Honor Judge Brown, as well as to disregard the decree of Judge Bunn and com-

plainant's acquiescence in it by dismissing the appeal. One of the patents in suit was abandoned by the complainant, two others were held invalid by the court, the fourth, the Gray patent, here in suit, was sustained, with a construction which would not cover this defendant's machine. It was conceded by the court in its opinion that if the limitations introduced into the claims after rejection, and as a condition of allowing them, were to be given literal effect there would be no infringement, but the court held that the elements without these specific limitations (and corresponding in these respects ~~the same as~~ with the prior patents upon which the rejection was made, and to avoid which the amendment was introduced) would be the equivalent of the elements having the limitations so expressed; and with this construction adjudged four claims of the patent to be infringed. No final decree has as yet been entered in that cause, and it has not reached a stage where it can be appealed. (*Consolidated Roller Mill Co.* v. *Coombs*, 39 F. Rep., 25.)

Shortly after the decision in favor of the patent in the Coombs case, the complainant filed its bill in the District of Indiana against the Richmond City Mill Works, the manufacturer of the mill adjudged an infringement in the Coombs case, charging that it was manufacturing and selling other mills similar thereto, reciting the proceedings in the Coombs case, and asking an injunction and account. A motion for preliminary injunction was brought to hearing before his Honor Judge Gresham. The manufacture and sale by the defendant of mills similar to that used by Coombs was conceded, but it was insisted, among other things, that if effect was given to the limitations in the Gray patent introduced by amendment to avoid prior patents, the decisions of the Supreme Court in the recent cases of *Shepard* v. *Corrigan*, 116 U. S., 593 (p. 597), and *Sutter*

v. *Robinson*, 119 U. S., 530 (p. 541), excluded the patent from covering defendant's machine, which did not contain the elements thus introduced; that the patent having been found invalid in the circuit where defendant was located before the alleged infringement, and the complainant having after incurring the expense of perfecting an appeal and when the case presenting sharply the question of validity as affected by documentary evidence was about to be reached in the Supreme court, dismissed the appeal and acquiesced in the adverse decision, and by its own act prevented a final adjudication by the Supreme Court, it had concluded itself against equitable relief in respect to this patent, that the action of the complainant in dismissing that appeal was a confession of its own conviction that the patent could not be sustained before the Supreme Court, as well as an acquiescence in the decree below; and that as between a decree in this circuit to which the complainant was privy, and which, by its own action, was made conclusive after appeal, on the one hand, and an interlocutory decree of another circuit, which had not been acquiesced in and made final, on the other, the former must control the action of this circuit. Judge Gresham refused the injunction providing a bond was filed, saying (*Consolidated Roller Mill Co.* v. *Richmond City Mill Works*, 40 F. Rep., 474, p. 475):

> "Prior to the commencement of the Michigan suit, Allis, the then owner of the Gray patent, sued Freeman for its infringement in the Western District of Wisconsin, and after a hearing the court (Judge Bunn) held the patent invalid, and dismissed the bill for want of equity. The complainant appealed, and then assigned the patent to the parties, or some of them, who became complainants in the Michigan suit, and they dismissed the appeal. Why this was done we do not know. In Gray's first application for a patent he claimed broadly the

means for adjusting the roller bearings, irrespective of the particular location of the supporting pivots, which were adjustable, and irrespective of other details of construction. The application was rejected by the Patent Office. Gray submitted to the decision, and filed another application, with claims limited to special devices for his adjustments, and the application, with the claims thus limited, was allowed. . . . Certain foreign patents, properly or improperly, caused the Patent Office to reject Gray's original application. He submitted to the decision as stated above, and amended his claims by limiting them to the 'special devices' by which he made his adjustments, and if he is held to these limitations, and his claims are not expanded by construction, this suit must fail, and the appeal from the Michigan decree will be reversed. It is not necessary, however, for the court, at this time, to express an opinion as to the correctness of the rulings of the learned judge who entered the decree in the Michigan case, or of the effect of that decree upon the defendant in this suit. The defendant is a manufacturer, and the complainants are not, and if the Supreme Court should hold the Gray patent invalid, and reverse the decree in the Michigan suit, this defendant might, and probably would suffer irreparable injury, while, if the decree of the Michigan Court is affirmed, the complainants can recover full damages and profits for the use of their patented improvements. The defendant owns and operates an extensive establishment, and has a large capital invested in the manufacture of roller mills. It cannot be said upon the proofs before the court that the defendant has not been carrying on its business in good faith, and in the belief that it was not trespassing upon the rights of others, and a sudden stoppage of its business might be ruinous to it. The chances are more than even that if the court should now issue a provisional injunction as prayed for it would result in serious injury to the defendant without benefit to the complainants. The motion for a provisional injunction will be denied when the defendant files an undertaking, with security, to be approved by the

clerk of the court, for the payment of any decree that may be rendered in favor of the complainants on final hearing."

Before the decision of the motion for injunction in the suit against the Richmond City Mill Works, a bill was filed by this complainant in the Eastern District of Michigan against the Geo. T. Smith Middlings Purifier Co., charging it with infringement of this Gray patent, and an application for injunction was made before his Honor Judge Brown, complainant contending that all the claims of the patent except the first were infringed by the Smith machine. Defendant's machine, in that case, corresponded to the patent so much more closely than the Barnard & Leas machine, that though the Barnard & Leas case was already pending and proofs in, the complainant preferred to begin a new suit against the Smith Company, and ask an injunction in that suit before moving for an injunction in the Barnard & Leas case.

Judge Brown, after holding this motion under advisement, decided that the Gray patent could not be construed to cover the defendant's machine, and that neither claim was infringed.

After referring to his decision in the case against Coombs, he said (*Consolidated Roller-Mill Co.* v. *Geo. T. Smith Middlings Purifier Co.*, 40 Fed. Rep., 305, p. 307):

"Other methods of adjusting rolls, both vertically and horizontally, existed before Gray filed his application, and in at least one there was a combination of both adjustments as applied to the same roll. That the defendant has produced a machine which accomplishes the same results as the plaintiff's will not be seriously disputed, and the only question is whether it has accomplished them by the same, or by an essentially different, device. These results are four in number: (1) a vertical adjustment at

each end of the movable roll; (2) the horizontal grinding adjustment, by which the distance between the two rolls is kept precisely the same while the rolls are in operation; (3) a spring device, by which the rolls are made to yield to a breaking strain whenever a nail or other hard substance enters between them; (4) a stop and holding device, by which the rolls are spread apart when not in operation, and are thrown together again without a new adjustment.

To accomplish these results, the patentee made use of—*First.* Two rolls, one of which is fixed, and the other adjustable. His specifications also seem to contemplate that both rolls may be made adjustable, but in what manner is not stated. Indeed, it is difficult to see how this could be done without taking away from the combined devices applied to the other roll, some one of the elements, which would destroy the integrity of the combination. *Second.* An upright, swinging arm at each end of the adjustable roll, upon the pivot of which the roll is moved in a vertical direction. *Third.* A rod, G, at one end of which are devices for the grinding adjustment, and a spring urging the upper end of the arm inward, but yielding to a breaking strain, and at the other end the stop and holding devices for the spreading adjustment. In the defendant's machine both rolls are adjustable. To one is attached the spring and a nut and eccentric for vertical adjustment, and to the other the grinding adjustment and the stop and holding device. There is no lever or swinging arm, but the journals of both rolls rest upon horizontal shafts, one of which may be raised and lowered for the vertical adjustment, and the other of which slides forward and back, carrying the second roll to and from its fellow. There is no rod, G, fitted at either end with the several devices for horizontal adjustment, and nothing properly corresponding to it, since the shaft attached to one of defendant's rolls corresponds about as nearly with it as the one attached to the other. If we were to attempt to locate it, we should have to say that it was divided into two sep-

arate parts, by one of which the vertical adjustment is accomplished; while in plaintiff's patent this adjustment is made by means of a swinging arm, and not by means of the rod. This rod, and the upright swinging arm, we regard as of the essence of the plaintiff's patent. Should defendant's device be adjudged an infringement, we should not know where to draw the line, providing the defendant's device accomplished the four results. This, evidently, was not the scope of the Gray patent, since the original claims for the combination of those adjustments had been rejected by the Commissioner. While the sliding support might be, under certain circumstances, a mechanical equivalent for the swinging support, in view of the state of the art, and the limitations upon plaintiff's claims, we cannot consider it so in this case. Under the view we have taken, we find it unnecessary to consider the claims separately. The departure of the defendant's machine from the underlying theory of the plaintiff's is too radical to require us to descend to details. We are clear in our opinion that the injunction should be denied."

The logic of the decisions in the Michigan cases confines the patent to machines which contain an eccentric for independently adjusting the *pivots supporting the swinging arms* at each end of the roller, as the means of compensating for wear of the journals in the direction in which it cannot be restored by swinging the supporting arms on the same pivot; and this is the distinction to which the court refers in the Coombs case as saving the patent from anticipation. It was necessary for complainant in this case to contend for a construction of the patent that ignored its limitations, and to interpret out of it the features on which it had been sustained in the Coombs case, and hence Judges Brown and Blodgett, whose opinions have usually been harmonious, were brought into apparent conflict.

Of the claims that were involved in the Coombs case,

the second and third relate in terms to the vertical adjustment of the pivots on which the roll-supporting levers are supported. The fourth and fifth relate in terms to the tie-rod by which the movable roller is thrown into and out of working position, held to working position, and adjusted to different working distances, the adjustment of the length of that rod, and the combination of the adjustable spring with the rod.

As the defendant's mill does not use a vertically adjustable pivot, it is not charged with infringing the second and third claims. As it has no tie-rod corresponding to the tie-rod G of the complainant's patent, but spreads the rolls and adjusts them to working distances by means identical with the Nemelka French patent of 1875, and the Nemelka German patent of the same year, complainant's expert has not ventured to charge infringement of the fifth claim; but he seeks to treat as an equivalent for the rod G, or spreading device, of the fourth claim a spring-bearing rod which has no agency in the spreading of the rolls or the readjustment of them to working position, and simply serves the usual purpose of the adjustable spring-bearing rod as used in the older mills.

The combinations of the fourth and fifth claims have reference simply to making the tie-rod at once the instrument in throwing the rolls into and out of working position and the means of supporting and adjusting the spring; and it does not appear to have been the intention either of the patentee or of the Patent Office to include the provision for vertical adjustment of the pivots in the claims relating to this combination. Such stress was laid by complainant, in the argument of the Coombs case, upon applying to the same roller-bearing the independent vertical adjustment of its pivot by an eccentric for "tram-

ming," and the horizontal adjustment for "spreading," by the movement of the rod G, that the court depended on this eccentric adjustment of the pivot for "tramming" (which it called the underlying principle of complainant's patent) and the longitudinal movement of the tie-rod for spreading and returning, to avoid the prior Nemelka patents. It was only by importing these qualifications into the fourth and fifth claims, that the court was able to save them from anticipation and construe them as covering the defendant's machine in the Coombs case, where the pivots were vertically adjustable and the rod which the court held to correspond to the rod G was the means of spreading and returning the rolls. As the present defendant's machine has neither of these elements, it cannot be held an infringement without rejecting the theories upon which Judge Brown's opinion is predicated, and the construction which he has given the claims in order to sustain them. His decision in the Smith Middlings Purifier Co. case also in terms confined this Gray patent to a combination in which the rod G is the spreading device, having at one end devices for the grinding adjustment and a spring urging the upper end of the arm inward, but yielding to a breaking strain, and at the other end the stop and holding devices for the spreading adjustment; and in which this is combined with an upright swinging arm at each end of the adjustable roll, upon the pivot of which the roll is moved by an eccentric in a vertical direction. In that case he held defendant's mill not to infringe any of the claims of the patent, notwithstanding it had horizontal spring-carrying rods connecting the movable bearing of the rollers with the stationary part of the frame, and holding the rollers to their working position, with nuts on the rods for the adjustment of the springs, and with an adjustable stop to limit the approach

of the rolls to each other, the movement to and from working position (that is, the spreading) being effected by other rods placed in alignment with the spring-bearing rod and operating in substantially the same way as the rods G of the Gray patent, and the adjustment to tram being effected by other means than an eccentric applied to the pivot. He laid stress upon the fact that the same rod was not made, as in Gray's patent, to serve at once the purpose of adjustment and of spreading the rolls, and that the independent vertically adjustable pivots were not present, though there was provision in the machine for both vertical and lateral adjustment of the roller bearings independently, effecting the same result.

The complainant was obliged in the present case to ask the court to adopt Judge Brown's opinion as to the validity of the patent, while rejecting the limitations upon which he sustained it, and to expand the claim to cover a construction more remote than that which was before him in the Smith case.

In the decision in the Michigan cases, it is distinctly conceded that the patentee was not the first to combine in one machine all the adjustments exhibited in his patent, including the adjustment of the spring-pressure, and that the patent must be confined to the means of making these adjustments.

Want of Novelty.

Roller mills having the crushing rollers arranged in pairs, so that the grinding was done between the revolving surfaces, and having the bearings of one of the rollers supported at each end on independently adjustable levers, with independently adjustable stops to limit the inward swing of these levers, so that the roller could be adjusted in both vertical and horizontal planes at each

end to bring it into alignment or tram with the stationary roller; having also springs bearing against the swinging levers so as to enable the rollers to elastically yield to allow the passage of any hard substance, such as a stone or nail, and having these springs adjustable to a greater or less tension; were common in the art long before the date at which Gray claims to have conceived the invention here in controversy. They were extensively used in Europe and were described in all the standard treatises upon milling published there. Every adjustment contemplated by Gray was specifically provided for and described, and the means of effecting each of these adjustments very fully illustrated. For the purpose of giving the elastic yield to the rolls, various kinds of springs had been described in both printed publications and patents relating to roller mills, some of them consisting of rubber blocks or cylinders held in a suitable socket and adjusted to different tensions by means of set-screws; some of them consisting of coiled springs mounted on rods and adjustable by means of nuts travelling on these rods; some of them of other construction familiar to mechanics as a means of giving ~~them~~ elastic play. Adjustable weights had also been employed for the same purpose and had been described in the same publications and patents as those describing the spring, and spoken of as alternative methods of providing for this elastic yield. Some of these patents and publications had described still another alternative means for applying and varying this pressure, viz., by changing the angle of inclination at which the swinging supporting arms were placed, so as to vary the leverage with which either gravity or the spring resistance operated. The relative advantage and disadvantage of springs and weights (which were the same as their relative advantage and disadvantage in other mechanical

uses to which they were put) were pointed out in such publications. All these various adjustments had been described in the same patents and publications, and mills containing them all jointly had been patented, and described and illustrated in the literature of the art.

Gray did not introduce any new adjustments or any new means of effecting adjustments, or any new spring, or means of regulating the tension of the spring, nor did he give to either adjustment, or to the spring, any other or different operation or effect, or apply them to any different office from that which was common in the older mills. The most that complainant can claim for him is that he took the means of effecting the relative adjustment of the rolls which he found in one old mill, and the means of supporting and spreading the rolls that he found in another old mill, using each for identically the purpose and with identically the effect with which it was used before. The defendant denies that he originated even as much as this, and says that the entire combination (even if all the limitations of the several claims are imported into the other claims) is to be found collectively in some of the older mills, and that the modifications made by him were merely formal and did not constitute invention, and certainly have not been adopted by the defendant.

The Austrian patent granted Nemelka May 22nd, 1875, (Rec., p. 303) and the French patent granted to the same inventor June 23, 1875 (Rec., p. 283), both illustrate and fully describe roller mills having not only all the adjustments above mentioned, but additional capacities for adjustment which have been the subject of still later patents to Gray. A patent taken out in England in the name of Lake, but in behalf of the same Nemelka, January 4, 1878 (see Rec., p. 318), describes a variety of means of effecting the same adjust-

ments, and illustrates interchangeable methods of both vertical and horizontal adjustment to bring the rollers into parallelism, of spreading the rolls and returning them to fixed position, of varying the grinding adjustment, and of varying the spring tension or elastic pressure. Intermediate between these two patents, that is to say, in September, 1875, one of the leading works on milling, *Die Muehle* (see Rec., p. 273), described and illustratrated a roller mill having all the features of adjustment specified in the fourth, fifth and sixth claims of defendant's patent, constructed and operated as shown in defendant's patent, with the sole exception that the tie-rod, bearing the coiled spring, and the nuts for adjusting respectively the spring and the grinding distance, was located *below* the roller-bearing, so as to act as a *push-rod*, instead of above it, so as to act as a *pull-rod* (corresponding in this respect to the coiled spring of the defendant's machine). Coiled springs placed on push-rods behind the bearings of roller mills, adjustable to different tensions on these push-rods, which were themselves adjustable to space the rolls, were illustrated in many different patents and publications, as means of imparting and adjusting the elastic pressure and of adjusting the movable roll to and from the stationary roll.

The Daverio Italian patent of addition, dated March 15, 1878 (Rec., p. 298), the Nagel and Kaemp English patent (granted in the name of Pieper), April 24, 1878 (Rec., p. 327),the Schacht American patent No. 130,078, granted July 30, 1872 (Rec., p. 360), and the Thompson & Taylor mill in use in the Western Mills of Chicago since 1876 (Rec., p. 251), the Mechwart English patent granted,April 2, 1878 (Rec., p. 330), are among the illustrations in evidence of the coiled spring adjustable by a nut on the supporting rod which sustained the movable

bearings of the crushing roller and adjusted it relative to the fixed roller. They have the usual adjusting nuts on the rod by which the tension of the spring can be varied. The Corrister patent No. 84,799, of December 8th, 1868 (Rec., p. 356), is a still older illustration of this coiled-spring adjustable on the push-rod, which push-rod is in itself adjustable to vary the position of the movable roller in respect to the stationary roller with which it engages. The latter patent, however, relates to a pair of rollers in a fluting machine, rather than in a grain-grinding machine. All the others above mentioned have reference to grain-grinding roller mills.

In machinery where there are rotary surfaces which it is desirable to keep in parallelism or alignment with, or at a definite angle from, associated mechanism, it is customary to make the journal bearings of such rotating part independently adjustable so as to restore the proper alignment when it is disturbed by wear of the bearings. This is so common an incident of machine shops, that if Gray had been the first to make the journal boxes of a roller used in a grinding-mill adjustable so as to restore the alignment when disturbed by wear, it seems hardly possible that the application of an expedient so common for restoring or adjusting the alignment in other mechanical devices for the same purpose (that is, to compensate for the wear of the bearings) could be treated as patentable invention. The means of making such adjustments and the occasion for them were so familiar to mechanics, that a patentee who had made any real invention would hardly think it necessary to mention such incidents in the description of his machine. But the application of these adjustments to roller mills of the same character as that with which Gray was dealing, and the purpose of them, had been so fully described in the

literature of the art that we are not left to inquire whether it would be patentable to adopt in the journal-boxes of a roller mill the usual means of restoring alignment in the journal-boxes of other revolving cylinders.

Before referring more specifically to the prior machines, it is important to have in mind the distinction between the adjustments to restore parallelism, the adjustments to vary the fineness of the grind (in other words, the closeness of approach of the rolls), the adjustments to and from working position, and the adjustments to greater or less elastic pressure or resistance. These are each distinct adjustments, all of which were provided for in the prior machines, the means of effecting each being in some of them practically identical with that adopted by Gray.

The adjustment to restore the alignment or "parallelism" of the rolls when disturbed by the unequal wear of the journal-boxes (an adjustment which is required in the journal-boxes of roller mills for the same reason that it is in the journal-boxes of other shafting whose alignment must be preserved for the best working of the machinery), is the "parallelism," sometimes called "tramming" by the witnesses, though the term "tram" does not occur in the Gray patent. Complainant's counsel in the Coombs case seems to have diverted the attention of the court from the adjustment of the pivots of the swinging arms of the Nemalka mill (by which parallelism or "tram" is restored when the boxes are worn) to other adjustments intended to regulate pressure; for while, as the courts say, there are adjustments for pressure, these patents refer specifically and repeatedly to adjustments to *restore parallelism of the rolls and compensate for wear*, which is an exact definition of the adjustment referred to. If there is special virtue

in the word itself, the word "*tram*" is not found in the Gray patent, any more than in the foreign patents.

There are several adjustments common in roller mills provided for in the Gray patent. They are for entirely distinct purposes, and are none of them new. It is important not to confuse either with the other, and not to be deceived about the identity of either because it is given a new name.

The first, the adjustment to *parallelism*, involves necessarily a capacity of moving the journal-box at one end of the roll relative to the journal-box at the other end of the same roll, both vertically and horizontally. This adjustment, when once made, would be disturbed by any movement of the journal-box at one end of the roll relative to the journal-box at the other end of the roll. In the Gray patent this is mentioned under similar terms to those by which it is described in earlier patents, viz., an adjustment to compensate for wear. The patent does not pretend that such adjustment is new, but some of complainant's witnesses having named it "tramming," that term has been treated as if it had sufficient magic to change the character of a common mechanical expedient. The object in "tramming" rolls is to get them parallel, and when they are parallel they are "in tram."

The second adjustment referred to is that to *different grinding distances*. These adjustments to grinding distances call for a uniform separation or approach of the rolls throughout their length, and in making them it is desirable to retain the same relative position of the journal-boxes at each end of the same roll.

The third adjustment—that referred to in the testimony as "*spreading*" the rolls—is an adjustment for throwing the rolls temporarily apart when work is to be

stopped, and restoring them to the grinding distance at which they had been before set when work is to be resumed. Like the second adjustment, it does not involve any change in the alignment of the rolls, but, on the contrary, it is important that it should be made without disturbing that alignment—that is, there should be no movement of the journal-box at one end of the roll relative to that at the other end of the roll in making this adjustment; it should be made in such a way that when returned to working position the alignment will be necessarily the same as before it was withdrawn.

The fourth adjustment is simply the *tightening* or *loosening of the springs* which cushion the rolls, or (where weighted levers are used instead of spring-pressed levers, to apply the yielding resistance) the moving of the weights to and fro on the levers. This adjustment is for a purpose entirely independent of each of the others, and may be varied in the manner common to all cases where provision is made for elastic resistance, either by the usual methods of tightening a spring or, if weights are used, by changing them, or by moving the weights nearer to or further from the fulcrum of the lever on which they rest. All these methods of effecting the variation in elastic pressure were described and illustrated in the Lake patent that has before been referred to, and in machines in which each of the other adjustments of the Gray patent were provided for.

In the Nemelka Austrian patent of May 22, 1875 (Rec., p. 303), and the Nemelka French patent of June 23, 1875 (Rec., p. 283), is shown what is sometimes termed a double roller mill—that is to say, a roller mill having two pairs of rolls, one of the pair being mounted in fixed bearings, and the other being mounted in movable bearings. As each pair is independent of the other

pair, it is practically two independent roller mills mounted in a single frame. The boxes at each end of the movable roller are hung on the upper end of independent levers swinging on an eccentric pivot, which extends from one lever to the other, and imparts a simultaneous movement in the same path to each lever. To the shaft carrying these eccentrics is attached a hand-lever by which the eccentric is operated. The movement of this eccentric is for the purpose of throwing the rolls to and from working position, a movement where it is important to preserve the alignment which the rolls already have relative to each other, and guard carefully against any disturbance of that alignment. The construction is, therefore, a most effectual one to secure its purpose, as the exact alignment is necessarily preserved. This is the *spreading* operation, and corresponds identically with the same operation in the defendant's machine, where it is effected by the same mechanism applied to the same pivot. It is not to be confused with the "tramming" (adjustment to parallelism) to compensate for wear.

This Nemelka machine has, like the defendant's machine, an adjustable spring applied to the opposite arm of each lever from that which carries the roller bearing, tending normally to press this arm of the lever outward, and thereby throw the bearing inward; and this spring is in the Nemelka, as in the defendant's, capable of adjustment by means of nuts and screws to independent tensions, so as to increase or diminish the elastic pressure against which the rolls yield when a hard substance, like a stone or a nail, passes between them. The means of adjusting these springs to different tensions independently on each lever is both shown and described. These Nemelka patents provide in terms for adjusting the rolls to parallelism to compensate for wear, against displace-

ment either from the plane of the rolls or in that plane, by making the pivots on which each end of the movable roll swings adjustable independently of each other, and by making the stops against which the roller-bearing swings independently adjustable in the opposite direction, thus enabling each journal-box to be either raised or lowered relatively to the other journal-box, or moved to or from the fixed roller, independently of the other journal-box. This enables the adjustment to parallelism, both vertically and horizontally, to be effected within any desired range, and also enables the distance to and from the rolls to be varied at will. The screws limit the inward swing of the movable roller bearings, serving the purpose of tramming the rolls, of varying the grinding distance, and of affording adjustable stops which fix the limit of approach of the rolls to each other, so that when the adjustment is once made they can be spread and returned to identically the same position relatively to the fixed roll as well as to the same tram as they had before they were spread. The rolls can be spread or set at different working distances by throwing in or out the spring-carrying sockets, which are adjustably connected with the standard of the machine, and this adjustment can be made with the utmost delicacy, but the patent describes a still more convenient method of spreading and adjusting the rolls, which this defendant has adopted, viz., by the eccentric pivot of the lever.

In both the Nemelka patents and in the Lake patent (Rec., p. 318), as in the Gray, the adjustment to parallelism is made in one direction by swinging the lever at one end of the rolls relatively to the lever at the other end, while the adjustment in the other plane is made by moving the pivot on which the lever swings. In the

Nemelka machine the adjustment in the horizontal plane is made by moving the pivot horizontally, and the adjustment in the vertical plane is made by swinging the lever. In the Gray machine the adjustment in the vertical plane is made by moving the pivot vertically, and the adjustment in the horizontal plane is made by swinging the lever. This reversal of adjustment is incident to the difference in the shape of the levers (the Nemelka lever being bent over at its upper end, while the Gray is straight vertically), but this transposition is purely formal. In each case the adjustment of the pivot is approximately perpendicular to the arc in which the roller-bearing swings (more nearly perpendicular to this arc in the Nemelka machines than in the Gray), and serves to make the adjustment complemental to that made by swinging the lever in that arc; the two adjustments enabling the disturbance of parallelism in every possible direction to be corrected; or, in other words, giving capacity for adjustment to any desired alignment.

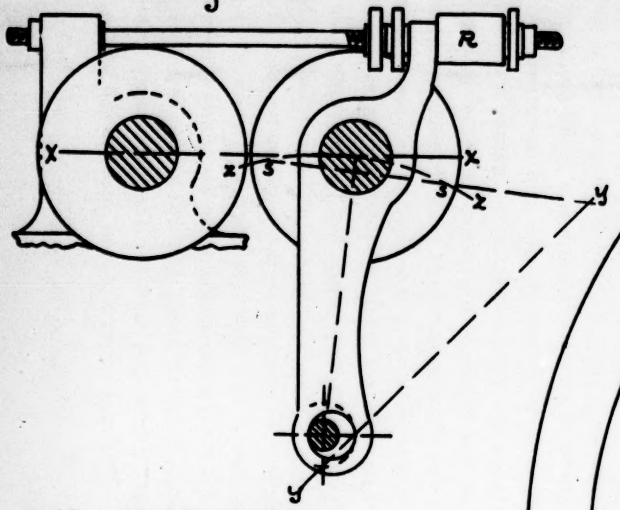
While the adjustment to restore parallelism against every possible displacement involves a capacity for moving the roll in two directions, each crosswise of the axis, it is not necessary that these two directions be at right angles to each other, or that one of them be directly toward the plane taken through the axes of the rolls. Neither of these adjustments are directly vertical or horizontal in the Gray patent. Neither is perpendicular to the plane to which the roll is to be restored. Both are in a curved path whose general course is inclined towards the desired plane. When this patent speaks of a vertical adjustment, it does not (as illustrated in it) mean an adjustment that is directly vertical or directly perpendicular to the plane taken through the axes

of the rolls. The movement of the eccentric, while it raises and lowers the pivot, does so on a curve which departs on an average forty-five degrees from the perpendicular. It moves the pivot horizontally as well as vertically, but it would not effect the adjustment to parallelism if not accompanied by another adjustment more or less crosswise of the resultant of this, and this second adjustment for securing parallelism is made by the nut that limits the approach of the rolls, and against which the spring pressure exerts its stress—that is to say, one of the two adjustments is made by moving the pivot in a direction that approaches (though not in a direct path) the plane taken through the axes of the rolls, while the other is made by swinging the lever supporting the roll more or less on its pivot and adjusting the limit of that swing by a nut. In the Nemelka and Lake patents precisely the same is true. The adjustment of the pivot by which the restoration in one plane is made is in a direction approximately perpendicular to the arc in which the roll swings on this pivot when in working position, so as to make this adjustment substantially perpendicular to the other which is afforded by swinging the arm or lever on this pivot. In both the figures of the Nemelka patent and in Fig. 19 of the Lake patent the approach is quite as direct as it would be in many positions of the Gray eccentric, and more direct than it would be in some positions of that eccentric. In the Nemelka, as in the Gray, the other adjustment is made by the screw which determines the distance apart of the rolls when in working position, and also determines their pressure. In one case the nut is turned on the screw and in the other the screw is turned through the nut.

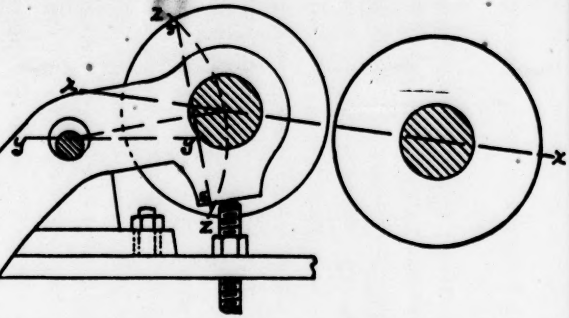
The accompanying diagrams illustrate the correspondence of these adjustments in the Gray and Nemelka ma-

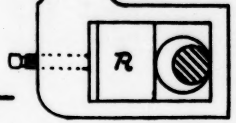
Tram Adjustments

Gray --- 1879.



Nemelka --- 1875.





X-X, = Plane of Rolls

Y-Y, = Direction of adjustment of Pivot

Z-Z, = Curve on which roller-bearing swings, and on which the second adjustment to complete parallelism is made by means of nut and screw

S-S, = Chord of said curve

R = Adjustable spring pressing rollers inward

chines. The adjustment of the pivot in the Nemelka is in the direction of the principal wear, the main pressure in the bearings being away from the opposing roll. This is, therefore, the more scientific and accurate construction.

It has been argued that the vertical screws by which the approach of the rolls in the Nemelka machine is limited and determined are a factor in determining the pressure, as if this would distinguish the Nemelka from the Gray. Precisely this is true in the Gray. The nut which regulates the approach of the rolls is depended upon to effect one of these adjustments for parallelism, and every change in that adjustment disturbs, to some extent, the spring pressure and the grinding distance. The adjustment is usually so minute that the disturbance of the spring pressure is of no consequence (that requiring no nice adjustment), but there is more disturbance in the Gray than in the Nemelka. This disturbance can, in the Nemelka, as in the Gray, be compensated for by tightening up the spring. In the Gray, every time that the grinding distance is changed, the parallelism of the rolls is disturbed, while in the Nemelka, after the parallelism is once obtained, it can be preserved under the different grinding adjustments, there being (as there is not in the Gray) mechanism by which these adjustments can be made while preserving the alignment of the rolls. The spreading of the Gray rolls involves the disturbance of the parallelism, as each end has to be released separately, and when the rolls are drawn back to working position, any dust that has got into the socket behind the shoulder of the tie-rod disturbs both the parallelism and the grinding distance, while the construction of the Nemelka and of the defendant's machine is such as to avoid this objection.

The defendant's machine can not adjust the pivot of the

lever in either direction for the purpose of tramming. Its levers do not correspond in the relative arrangement of its pivotal points, or in the path in which it swings, to those of the Gray patent.

If the Nemelka patent contained only the adjustments that have already been referred to, it would have every adjustment of the Gray machine effected in substantially the same way, except that the spreading of the rolls was (as in defendant's machine) by the partial revolution of the eccentric pivots on which the arms of the movable roll rest, so that this movement is simultaneous at both ends of the machine, whereas in the Gray patent, where the tie-rod G is the means of spreading the roll, each tie-rod has to be separately released, thrown back and drawn up, and the tram of the roll is therefore liable to be disturbed every time it is separated.

In the Gray patent every adjustment to different grinding distance involves two separate adjustments (one upon the tie-rod at one end of the roll, and the other upon the tie-rod at the other end of the roll), which necessarily disturbs the tram or parallelism of the rolls, and obliges a readjustment of that tram, a tedious operation. So, too, in the Gray machine, the adjustment of the spring tension can only be made independently at each end of the roll. There is no assurance of making it uniform, and every change in the grinding distance of the rolls disturbs the tension of the spring and calls for a readjustment of it.

The Nemelka machines, with the adjustments which have before been described, have all the advantages with none of the disadvantages of the Gray machine, and in respect to the method of spreading and returning they have a great advantage over the Gray. It is to enable each of the adjustments to be made, either

independently at each end of the rolls or *simultaneously* and *uniformly* at both ends, according to the purpose of the operator, and to illustrate *alternative* modes of varying the elastic resistance between the rollers, that the additional provisions are made in the Nemelka and the Lake patents, to which it has been the aim of complainant to divert the attention of the court, so that it might confound them with those which are there to perform the same office as the corresponding parts in Gray; and it is only by such confusion, or by misapprehending the various capacities of these Nemelka machines, that it is possible to fall into the error of supposing that Gray made any improvement upon Nemelka, or to mistake the very shadowy distinctions upon which the Patent Office allowed the claims of the Gray patent.

The adjustment to tram to compensate for wear of the bearings has only to be made at long intervals, providing the movable roll is capable of adjustment to different grinding distances and to and from working position without disturbing the tram. So, too, it is generally desirable to readjust the springs at both ends at the same time, both for the purpose of effecting the readjustment by a *single operation*, and for the purpose of applying a *uniform* increase or diminution of pressure on both bearings.

Nemelka, therefore, while providing a means by which the adjusting screws *n* may be *independently* set to raise or lower the bearing at either end or to fix the limit of approach of the rollers, provides a supplemental means of raising or lowering these adjusting screws *simultaneously*, by means of a worm-wheel, *o*, a worm, *e*, and a through-shaft *q*, upon which is placed the hand-wheel *r*. This shaft is provided with a lateral adjustment by means of a slot and pin (shown in the drawing, Fig. 1, and again by

a detail view in the small figure below), by which in one position it is made to operate as a through-shaft imparting precisely the same movement to the screws under each bearing, and in the other it is out of gear with the worm-wheels, so that the screws can be operated independently. When the vertical pin is withdrawn the shaft slips out of mesh with the worm-wheels and each screw is operated independently by its respective hand-wheel. The transmission of the power through the small worm to the worm-wheel, and thence to the small screw, enables the most delicate adjustment to be applied either for tramming or for simultaneously raising both ends, as may be desired, a much more delicate adjustment than would be possible with the construction shown in the Gray machine.

In order to enable uniform increase or diminution of the pressure to be applied to these springs by a single movement, a through shaft is provided at the lower end of the levers with an eccentric which can be thrown against the springs. This shaft has a large gear-wheel meshing with a small spur-wheel operated in turn by a long crank-arm, so that a very delicate adjustment is made possible. There is a pawl to lock the spur-wheel in whatever position is desired. This simultaneous adjustment, however, does not interfere with the capacity for independent adjustment of each spring by means of the set-screws described as used for that purpose. The Nemelka patent describes still another means which may be used for varying the elastic resistance of the movable roll, one which does not interfere with those that have already been referred to, but may be used either as an alternative means of adjustment or as a supplementary means of adjustment, or omitted altogether, it being shown in one figure and omitted from another where the spring is used alone. It consists in varying

the angle from the horizontal at which the short lever-arm supporting the roller-bearings rests when in working position. It is obvious that the higher this movable roller is, relative to its pivoted support, the greater its leverage on the spring, so that by raising the inner end of this lever the spring will be made to yield more readily because of the more effective leverage upon it, and by lowering it, this spring will be made to resist more stubbornly. The arrangement of the eccentrics upon the shaft at the lower end, which engage with the springs, is such that the turning of this shaft will simultaneously raise or lower the roll at both ends, that is, so as to preserve the tram, but give a greater or less leverage, as may be desired. The Lake and Nemelka patents are more accurate in their description of this adjustment than the Gray, as well as more mindful of the importance of avoiding unnecessary displacement after the parallelism is once established. Gray's specification incorrectly speaks as if parallelism could be secured by horizontal adjustment, and vertical adjustment was not included in the restoration of parallelism. These prior patents use the term "parallel" correctly, recognizing the fact that the cylinders can not be parallel unless their axes are in the same planes as well as uniform distance apart in that plane; in other words, unless their axes are "in all parts equally distant." Hence when the Lake and Nemelka patents state that the pivot supports of the movable roller

> "*May be adjusted separately to compensate for the wear of the pillow-blocks and keep the cylinders c, d constantly parallel*" (Nemelka patent, Rec., p. 284)

they describe the means for making the two adjustments necessary to secure complete parallelism—one by a movement of the pivot supports, and the other by a movement of the swinging levers about their pivots.

It will be noticed that where reference is made to *adjusting to restore parallelism*, or to *compensate for wear*, the *adjustments of the pivotal supports of the swinging levers* (which are made independently at each end), and of the adjusting screws *a* (also described as made independently at each end), are referred to, and these give exactly the *adjustment to parallelism* which is required, without interfering with other adjustments which are much more effectively made in this machine than in Gray's, when it is desired to *preserve* the parallelism once obtained. Nemelka's machine is constructed so that he can make each adjustment independently as Gray does, and by the same means, but he has provided in addition delicate and accurate methods of effecting such adjustments as require the *preservation* of a tram once obtained, and he gives the more prominence in his description to these means, treating as if they were already familiar and obvious the adjustments to compensate for wear which Gray adopts. Every one of the supplemental adjustments can be omitted from the Nemelka machine without disturbing the parts which correspond to Gray, and these parts will still be more delicately and conveniently adjustable than they are in the Gray patent.

The Lake English patent, dated August 31, 1877, but sealed and published on January 4, 1878, was procured by the same Nemelka who obtained the Austrian and French patents above referred to. Availing himself of the English practice which permits a great variety of machines to be embraced in a single patent, he describes and illustrates numerous alternative means of effecting the different adjustments shown in his former patent. In the roller mills exhibited he provides for and describes specifically the *independent adjustment of the bearings of the movable roller, both vertically and horizontally*, and

states that this adjustment enables the parallelism to be restored when the bearings are worn. In every instance where the adjustment of the pivot is referred to, the adjustment is such as to enable the readjustment of the alignment to compensate for disturbance in any possible direction. In every instance the adjustment in one direction is made by moving the pivot on which the lever supporting the rolls swings, and the adjustment in the other by varying the limit to which that lever is permitted to swing. In every instance the adjustment of the rolls to different grinding distances is provided for, and provision is made whereby this can be effected either simultaneously at both ends of the rolls without disturbing the tram or by moving each end of the adjustable roll independently of the other. In every instance provision is made for adjusting at will the elastic resistance of the movable roll under which it is permitted to yield to allow hard substances to pass between the rolls. Three different methods of applying and varying this elastic resistance are specifically described, one by the use of springs applied independently to the levers which support the movable rolls, the adjustment being made by set-screws which increase or diminish the compression of the spring and so increase or diminish the elastic resistance. As an independent means of varying this elastic resistance, a system of weights applied to the levers and made delicately adjustable is described and shown. As a third means of effecting the same result, an arrangement of the roller supporting levers at such an angle that the weight of the rollers themselves will afford the desired pressure is described, and in connection with it a means of varying this pressure by increasing or diminishing the angle from the vertical at which the roll is placed, provision being made for doing this so as to

preserve any desired grinding distance, or any desired tram. Each method of applying the adjustment is illustrated in machines where neither of the other methods is used, and in other machines two of them are illustrated together, but with capacity for alternative use.

In addition to the means for *independently* adjusting the springs, the patentee describes (as either alternative or supplemental to the independent adjustment) means for imparting *simultaneously* an increase or diminution in the pressure of the roll, this being, in every case, so arranged as not to interfere with the capacity for independent adjustment at each end. In this patent, as in previous ones, he also illustrates means of refining the adjustments to any desired degree by transmitting the movement from a hand-wheel or crank-arm through a worm or spur, thence through a gear-wheel of larger diameter, thence to the thread of a smaller screw, so that the adjustment can be made to the minutest degree and with the least possible exertion or inconvenience. He also describes gauges or index scales, subdivided to great delicacy, by which these adjustments may be determined. He represents some of these supplemental adjustments to be only desirable where "quick and sure setting of the rolls is required, irrespective of outlay," and omits them from illustrations and descriptions of some of his smaller machines; but the adjustments to restore parallelism and compensate for wear of the bearings, the adjustment to different grinding distances, the adjustments of the stops to fix the limit of approach of the rolls, the adjustment for spreading the rolls and returning them to the working distance at which they have been set, the provisions for elastic pressure and for varying this pressure at will, are reiterated over and over again in the description of the various machines, as well

those which include as those which omit the supplement adjustments.

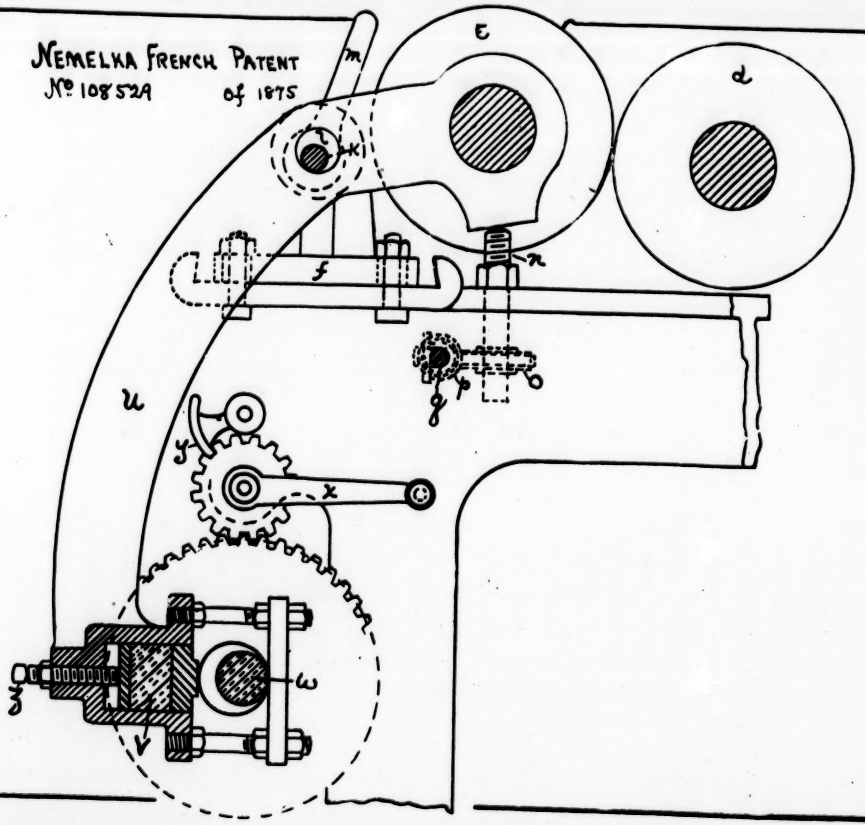
He also illustrates the pairs of rolls as placed in the same horizontal plane, and as placed in planes varying from the horizontal, and methods of adjusting the rolls to and from the horizontal plane. While the terms of some of Gray's claims exclude mills that do not have upright, swinging arms, and so cannot be infringed without them, there was certainly nothing patentable in employing the same expedients for adjusting the rolls of horizontal mills that had been used for adjusting-rolls set at any angle from the horizontal. The purpose of the adjustments and the effect of them does not depend upon whether the rolls are arranged in one plane or another, providing the two rolls of a pair are arranged parallel to each other. The purpose of the tramming is to restore the parallelism in the working surfaces—that is, the line of nearest approach on the surface of the two rolls constituting the pair. In the Gray patent, any vertical adjustment of the swinging levers must, of course, vary the plane passing through the two rolls with respect to the horizontal, and it would do the same in the Lake and the Nemelka, irrespective of whether the pair of rolls are in the horizontal plane or in a plane at any angle from the horizontal. If Nemelka had failed to illustrate the rolls in both horizontal planes and in planes at an angle to the horizontal, the use in the mill illustrated in the prior publication of "*Die Muehle*" (*Die Muehle* of 1875, Rec., p. 273) of Nemelka's means for tramming, would not, after the date of the latter patent, involve invention. The same methods of adjusting the pivots of the swinging levers, repeatedly described and illustrated in the Nemelka patents, could be applied without any change in construction or effect to the pivots of the machine in the "*Die Muehle*"

publication, or, for that matter, in any other prior machines. No other or different effect or advantage would result.

If it were true that so ingenious a mechanic as the the author of the Nemelka machine, after contriving and specifically describing and illustrating the mechanism by which each of these adjustments can be made, never perceived that the capacity for independent adjustment of the rolls towards the normal plane and relative to each other in that plane would enable him to restore parallelism, or if he had failed to mention all the purposes for which the described adjustments could be employed, no one could thereafter have a patent for using such adjustments for any purpose to which they were adapted without change. But he was neither blind to their uses nor silent about them. As complainants counsel in the courts below, unable to plausibly contend that the capacity for these various adjustments was wanting in the Nemelka machines, urged persistently that this was not thought of by the patentee and was not the purpose of these adjustments, I quote from these patents sufficiently to show that the purpose of each of the several adjustments was described specifically and with great definiteness, and with a reiteration that seems intended to leave no room for doubt, either as to the purpose of the adjustments or the means of making them.

Referring first to the means of adjusting the rolls to parallelism, the means of setting them to different grinding distances, and the means of adjusting the stops so as to limit the return of the rolls to the same grinding distance, whenever spread and returned to working position, the passages relating to these several adjustments may be quoted together in order to avoid repetition, though

NEMELKA FRENCH PATENT
No 108529 of 1875



d. Fixed Roll
e. Adjustable Roll.
f Independently Adjustable Pivot Supports
K.L. Eccentric Adjustable Pivot.
m. Lever.
n. Adjustable Stop.
o Worm Wheel.
p. Worm.
q. Shaft
u Swinging Arm.
v. Spring
w. Eccentric Shaft.
x. Lever to operate Eccentric.
y Pawl.
z Threaded Rod for adjusting Spring.

the adjustments are not to be confounded one with the other.

In the Nemelka French patent of 1875 (Rec., p. 283), after referring to the pillow-blocks of one cylinder of the pair as made fast to the frame (as they are in the Gray patent), the patentee proceeds (pp. 283, 284):

> "The pillow blocks *i* of the outside adjustable cylinders *c* are cast in one piece with the arms of the levers which turn on the shafts *k*, carrying the eccentrics *l* and forming one piece with the same.
>
> "These eccentrics are designed in conjunction with the lever *m* keyed on the shaft *k*, to adjust the cylinders *c* at all desired distances from the cylinders *d*, according to the different materials to be ground.
>
> "To prevent the cylinders *c* griping with cylinders *d*, I have placed below the pillow-blocks *i* adjusting screws *n*, attached to the frame *h*, on which these pillow-blocks are placed.
>
> "These screws *n* can be adjusted separately or by pairs on each cylinder, by the aid of an endless screw *p*, a shaft *q* and a handle *r*.
>
> "The lever *m* can be secured in any desired position by means of a pawl engaging in a tooth segment *s*, solidly bolted to the support *f*; if necessary, this toothed segment may be replaced by a grooved segment; a screw passing in this groove and the lever serves to clamp the whole at any point of the slot.
>
> "The supports *f*, in which the shafts *k* turn, are bolted to the frame and may be adjusted separately to compensate for the wear of the pillow-blocks and keep the cylinders *c*, *d* constantly parallel."

In the Lake patent, which is much fuller in its description, the specification states at the outset (Rec. p. 318), that:

> "This invention relates to improvements in roller mills for crushing and grinding grain, and particularly to means for varying the relative heights of the axes of the rollers to each other, and also their relative horizontal distances, for the purpose of produc-

ing a greater or lesser pressure of the one roller on the other.

"By arrangements for displacing certain levers, screws, wedges, or eccentrics connected directly or indirectly with the roller bearings, the variations of vertical and horizontal distances, and the required pressure between the rollers are obtained. . . .

. . . . . .

"In each pair of grinding rollers the bearings of the one roller are adjustable, while the bearings of the other roller are fixed. The bearings of the adjustable roller may be arranged at the ends of a pair of levers, the other ends of which are pivoted to an axle; on this axle eccentrics may be fixed. When these eccentrics are turned by means of a hand-lever fixed to said axle the adjustable roller will be moved towards or away from the other roller, as required for different qualities of product.

"In order to prevent the adjustable roller from being jammed together with the other a set-screw may be arranged under each of the bearings of the said adjustable roller. This pair of set-screws may be adjusted either separately or together; in the latter case, a worm-wheel and worm-screw with a hand-wheel may be used.

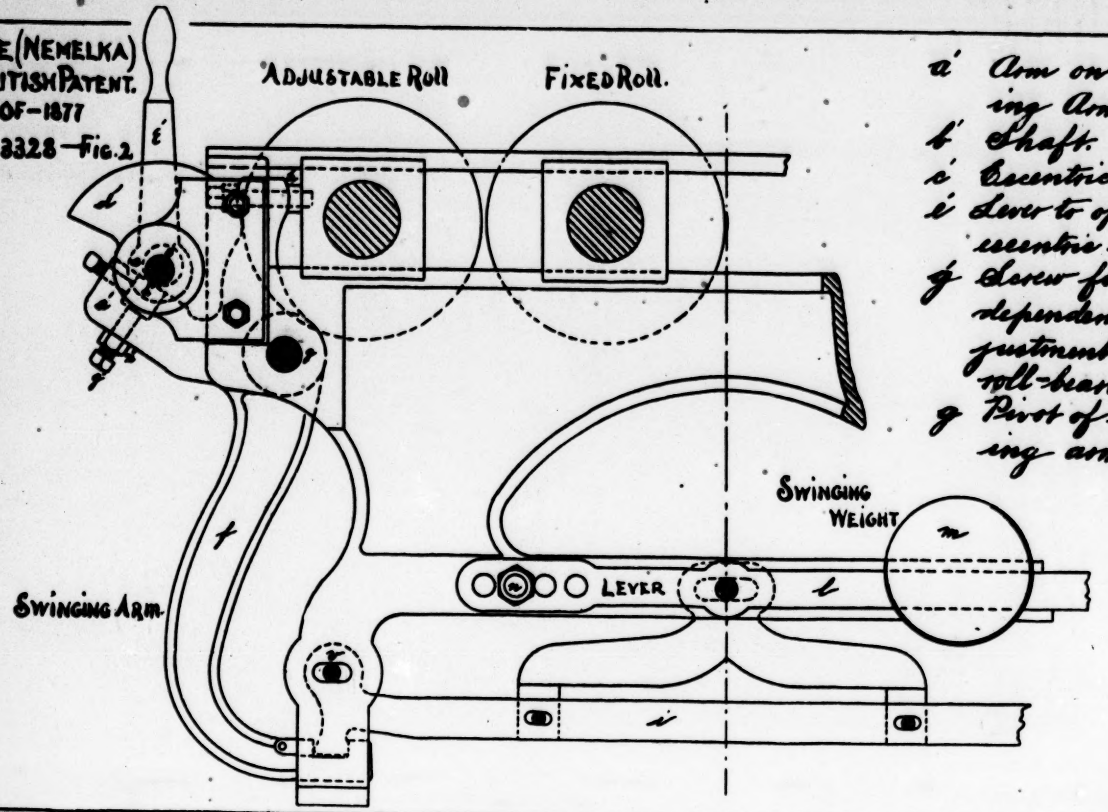
"The hand lever for moving the eccentric may be fixed in any desired position by a pawl falling into, or by a screw to be fixed into any one of a series of notches in a segment.

"The blocks, in which the axle with the eccentrics pivoted, are screwed to the standards, and can be adjusted on the same, in case of the bearings of the roller being worn, so as so insure the parallel position of the rollers to each other."

Then, after referring to the means of varying the *pressure* of the rolls (Rec., p. 319):

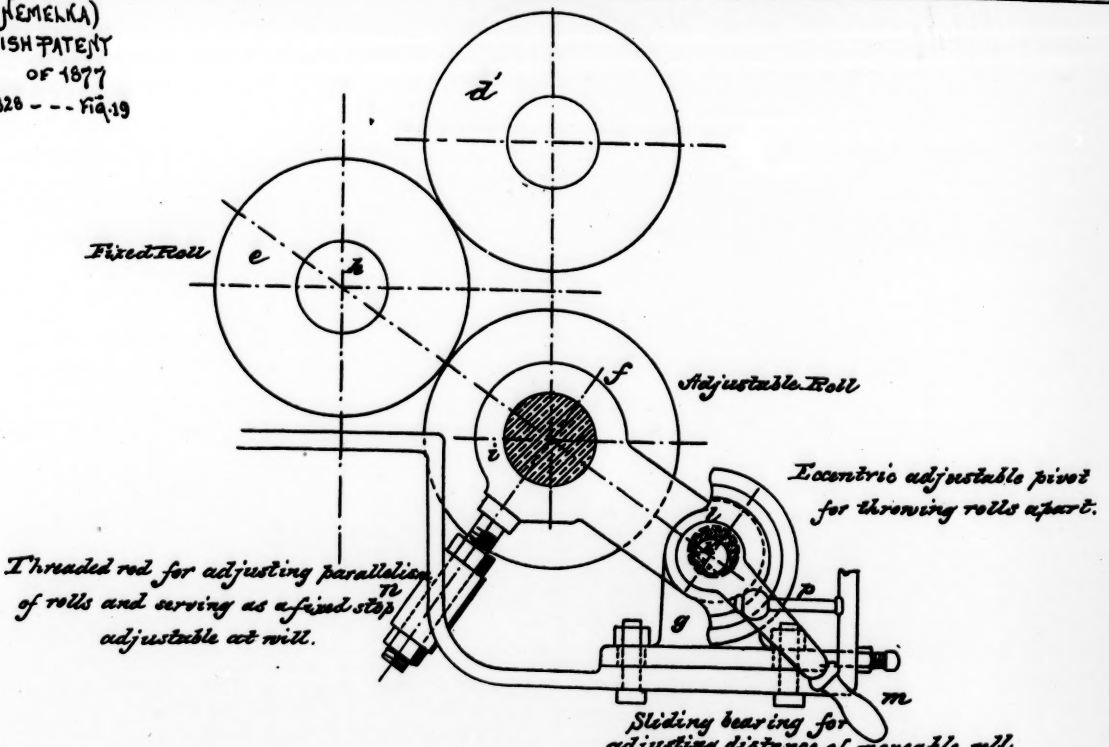
"The arrangements may be such that the rollers, when adjusted, will be prevented from approaching closer to each other, but not from receding further from each other, in case an unusually resisting substance should come between the said rollers."

LAKE (NEMELKA) BRITISH PATENT. OF-1877 No. 3328 — Fig. 2



a' Arm on Swinging Arm.
b' Shaft.
c' Eccentric.
e' Lever to operate eccentric shaft.
g Screw for independent adjustment of roll-bearings.
g Pivot of swinging arm.

LAKE (KEMELKA)
BRITISH PATENT
OF 1877
No. 3328 - - - Fig. 19



And again (Rec., p. 320):

> "The bearings *i* of the outer rolls *c*, *c*, are cast on the arms of levers pivoted on the shaft *k* by means of the eccentrics *l*, which form a part of or are fixed on the said shafts. These eccentrics *l* are arranged for the purpose of adjusting (by means of the lever *m* keyed fast to the shaft *k*) the rolls *c* in the necessary distance apart, as required for working up the grain under operation.
>
> "To prevent the rolls *c* from becoming jammed to the rolls *d*, there are set-screws *n* arranged on the framing *h* under the bearings *i* of the rolls *c*, and the bearings are set onto these screws. These set-screws *n* may be worked, either singly or in pairs, by a worm *p* with wheel *o* and spindle *q*, on which the hand-wheel *r* is fastened, as shewn in figure XV.
>
> "The lever *m* can be adapted to any position required by means of a pawl falling into the toothed segment *s*, figure XV. This toothed segment *s* is fixed onto the framing, and may conveniently be replaced by a segment with a slit, in which the lever can be held fast in any position required by means of a screw fixed to the said lever.
>
> "The brackets *t* in which the shafts *k* have their bearings are fixed on a bed-plate or table *h*, and are arranged so as to be set further inwards when they may have become worn, in order that the rolls may always be kept perfectly parallel, as shown in Figure XI."

Then, after referring to eccentries on which the levers of the movable rolls are mounted in the mill illustrated in Figure XIX, he says (Rec., p. 321):

> "These eccentrics *l*, *l*, are designed for the purpose of enabling the rolls *d*, *f*, to be adjusted to any required distance from the not adjustable roll *e* by means of the levers *m*, *m*, keyed onto the shafts *k k*.
>
> "In order to prevent the rolls *d*, *f*, from getting jammed to the roll *e*, the movable bearings *i*, *i*, are arranged adjustable on set-screws *n*, *n*, Figure XIX."

It will be observed that in the last quoted passage he is referring to adjustments, not for the purpose of tramming but for the purpose of preserving the distance between the rolls, and to the adjustable stops by which the rolls are prevented from approaching nearer to each other than the grinding distance determined upon, when thrown back to working position after being spread.

He then refers to another means of adjusting the distances to which the rolls may be returned, by stops on the levers, by means entirely independent of the stops before referred to. (Rec., p. 321).

> "The levers *m*, *m*, can be adapted to any position required by means of set-screws *p*, *p*, which work in slits cast in the brackets *q*, *q*, Figure XIX."

Again, referring again to the adjustment to parallelism (Rec., p. 321):

> "The shafts *k* rotate in bearings on the brackets *q*, *r*, Figure XIX. These brackets are bolted on the framing *s*, and can be slid out singly whenever the bearings are worn, so as to enable the rolls *d*, *f*, to be continually kept up in a perfectly parallel working position."

His third claim relates specifically to the means for effecting the adjustments to parallelism and the adjustable stops fixing the approach of the rolls. It is as follows (Rec., p. 325):

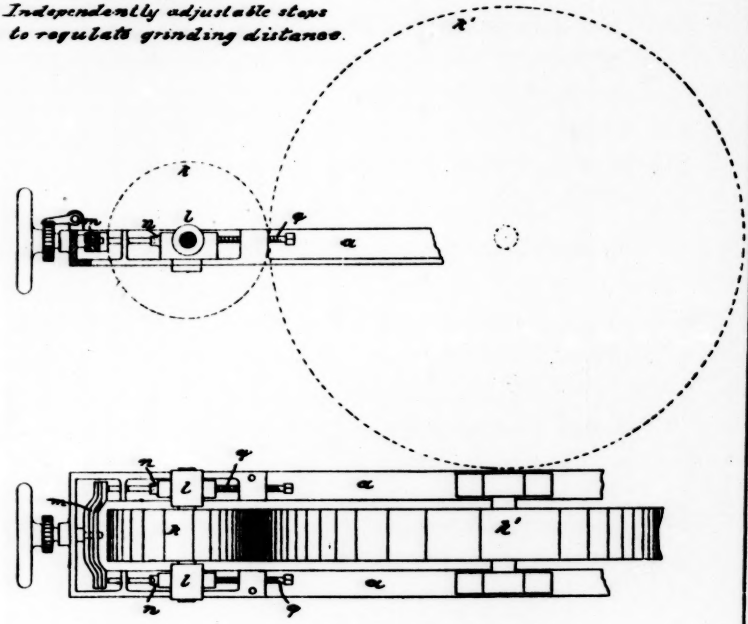
> "*Third.* The arrangements for adjusting the brackets *t* and setting the bolts *u* and the set-screws, as described."

His fourth claim refers to the means for spreading the rolls and restoring them to the previously adjusted position and to means of varying the pressure. It is as follows (Rec., p. 326):

> "*Fourth.* The arrangements for drawing the rolls apart or together by means of eccentrics, and

Bentall's English Patent
No 2690 of 1859.

R' Fixed roll
R Adjustable roll
m Spring for pressing roll R to its work
l Swiveled bearings for roll R
q q Independently adjustable stops to regulate grinding distance.



the use of eccentrics as means for exerting pressure, as described."

The seventh relates to another means for tramming the rolls, illustrated in another figure:

> "*Seventh.* The arrangements for displacing the brackets *q* and *r*, and adjusting the bolts *n* and the set-screw, as described."

The eighth refers to another means for throwing apart the rolls illustrated in some of the figures, as follows:

> "*Eighth.* The arrangement for drawing apart the rolls by means of the eccentric *l*, as described."

The eleventh is as follows:

> "*Eleventh.* The arrangements for regulating by means of the set-screws and eccentrics, as described, and shewn in the drawings."

Referring now to the means of adjusting the spring pressure applied to the levers in order to permit the elastic yield of the rollers to hard substances, it is to be borne in mind that adjustable spring pressure for this purpose was much older than the date of either of the Nemelka patents, and that while Nemelka illustrated and described such pressure as applied to his levers, there was at that time no novelty in the application and hence no occasion to describe the variety of springs that might be used. It was enough for him to illustrate one of the known adjustable springs in order to suggest the use of any of the various forms common for that purpose.

Springs, [redacted] adjustable on a screw rod by the same means as Gray's screw, for imparting a yielding resistance to the movable roller of grinding mills, and adjustable stops for fixing the nearness of approach of the rolls, are referred to in the Bentall English patent of 1859 (Rec., p. 314) and do not appear to have been re-

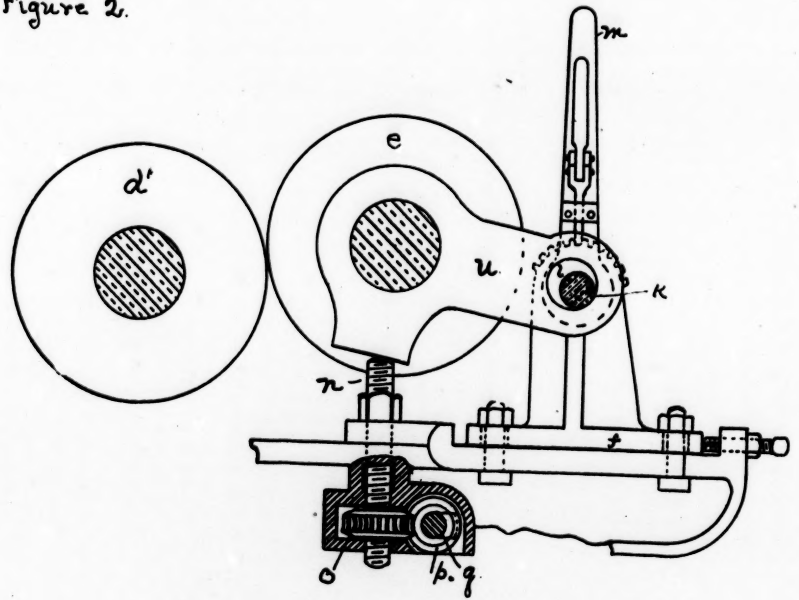
garded as novel at that time. They are shown in the mill described in *Dingler's Polytechnic Journal* of 1856–'7 (Rec., p. 270), in the Schacht American patent of July 30, 1872 (Rec., p. 360), in *Die Muehle* of 1875 (Rec., p. 273), and in various other exhibits. Daverio also, in his Italian patent of addition of March 15, 1878 (Rec., p. 298), Mechwart, in his English patent of April 2, 1878 (Rec., p. 330), and Pieper, in his English patent of April 24, 1878 (Rec., p. 327), had shown coiled springs on an adjustable rod provided with adjustable stops, applied to the levers supporting the movable rolls, for the same purpose. The prior patents had included in their illustrations a great variety of springs, among them the coiled spring arranged and adjusted upon a rod, the rubber spring adjusted by set-screws, independent springs placed upon the separate levers upon which the bearing at each end of the adjustable roller was mounted, and springs placed so as to apply their elastic resistance to both bearings of the roller and to adjust them simultaneously.

In his French patent of 1875, Nemelka, after describing the adjustments to effect parallelism, says (Rec., p. 283–4):

> "The greater or less pressure of the cylinders on each other depends upon the variable height of the axes of these cylinders; this height may be adjusted according to any pressure desired, by displacing the supports *f* and adjusting the screws *n*.
>
> "To prevent the supports *f* receding in spite of their bolts, they are held at the back by a wedge or key, and also, if necessary, by a pressure screw placed horizontally.
>
> "The levers to which the pillow blocks *i* are fastened, Fig. 1, can also be two-armed, and the lower arm *u* is provided with a socket in which is placed a rubber plug *v*, against which presses an eccentric shaft *w* which can be turned by gearings and the lever *x*.

KEMELKA FRENCH PATENT
No. 108529 of 1875.

Figure 2.



d. Fixed Roll.
e. Adjustable Roll.
f Independently Adjustable Pivot Support
K.l. Eccentric Adjustable Pivot
m. Lever
n Adjustable Stop.
o Worm Wheel.
p. Worm
q Shaft.
u. Swinging Arm.

"A pawl *y* serves to fix the lever.
"The rubber *v* can be adjusted by the screw *z*."

This latter provision for applying the elastic pressure corresponds exactly with that used by the defendants. It is applied at a point behind the roller-bearing between the heel of the lever and the frame below. It is adjusted by turning the set-screw in or out, and the adjustment made independently at each side of the machine. The provision for simultaneous adjustment shown in the Nemelka patent is wanting in the Gray patent. The defendant has used, instead of the rubber spring, its well-known equivalent, the coiled spring, which had been before the date of the latter patent applied in the same way for the same purpose, and adjusted by same means on the roll-supporting levers of grinding mills, as illustrated in many of the patents above referred to, and in the *Die Muehle* publication of 1875. (See Daverio patent of addition, Rec., p. 298; Schacht patent, p. 360; Schacht Roller Mill, (at Western Mills) p. 251; Corrister patent, p. 356; Pieper patent, p. 327.) This adjustable coiled spring defendant has applied to the same kind of lever, and at the same point as Nemelka applied his adjustable spring.

In the Lake patent, after describing a variety of methods of adjusting the pressure of the rolls and illustrating them in separate figures, Nemelka proceeded to describe the adjustable springs applied to the lever and adjusted on it in the same way as in the French and Austrian patents. He illustrates it in this case as applied to a mill in which the levers are upright and the rollers arranged in the same horizontal plane.

He says (p. 324), referring to the machine shown in Figs. 5 and 6:

"The India-rubber buffers *i* are placed between the iron plates *h*, *j*, in the box *f* in order to obtain an

equal pressure on the fixed rolls from both sides of the adjustable rolls, and the bolts *g* with double nuts are intended to allow accurate adjusting, see Figure V and IX. The rubber buffer also serves for producing an elastic pressure on the levers, and by screwing up or down the bolts *g*, according to the work required, the pressure on the buffers, and, through them, on the levers and the rolls can be increased or decreased at pleasure."

When Gray applied for the patent in suit he made five claims, some of which would in terms cover machines shown in the English Lake patent and the French and Austrian Nemelka patents, except that the first claim was limited to the pivoting of the adjustable roll "*in advance of the journals of the roll*" (a feature which the defendant in this suit is not charged with infringing). Most of these claims would also be in terms met by other prior patents before referred to. The application was rejected on this English Lake patent, all five claims were stricken out and the application was amended so as to limit the Gray invention to the mere transposition of the pivotal points of the lever and the use of a tie-rod above the roll with an outside spring pressing inward in lieu of a push-rod below the roll with an inside spring pressing outward for the same purpose.

The statement of invention was changed so that instead of reading (Rec. p. 262)

> "My invention relates to roller-grinding mills and consists in devices for adjusting the rolls vertically, as well as horizontally,"—

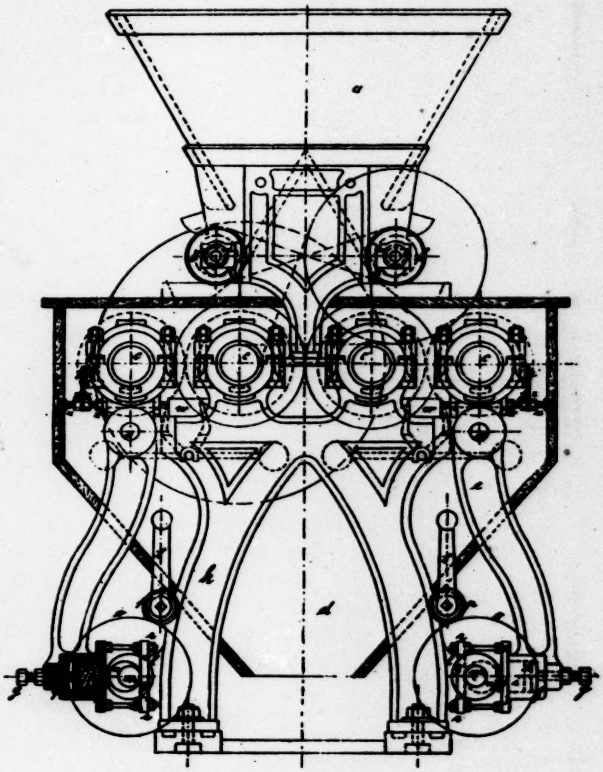
It read:

> "*In a peculiar construction and arrangement* of devices for adjusting," etc.

Also so that instead of reading,

Lake (Nemelka) British Patent of 1877, No. 3328,

FIG. 5.



"The invention also consists in the devices for separating the rolls when not in action"—

It read:

"Consists in the *special* devices for separating," etc.

Also, by changing the statement that Fig. 8 was—

"A view of *one form of device* for separating the rolls when not in action"

So that it read:

"A view of *the* device for separating the rolls not in action."

Also, by striking out the broad description of his invention as consisting in effecting the adjustments referred to, and inserting in lieu of the statement that the drawings illustrated some of the methods of effecting the adjustments that were claimed, the statement that (Rec. p. 266)—

"To this end the parts are *constructed* and *arranged* as represented in the accompanying drawing."

The first claim was amended, rejected and amended again by still further limitations, but as it is not involved in this suit, it requires no further mention.

The second claim was limited to the

"*upright* swinging arm at each end of said roll, an eccentric adjustable pivot *located at the lower end* of said arm, *and devices, substantially such as shown, acting against the upper end* of the arm." (Rec. p. 266.)

The Lake-Nemelka patents had shown the levers departing from the upright, and the pivot located *intermediate between the lower and upper end* of the arm in which the moving roll was journaled, and had applied the elastic pressure through devices similar in mechanical effect to defendant's, acting against the *lower* end of the arm to

push the rolls together and adjust them in position; that is, the devices of the Lake-Nemelka patents which did the work referred to in the last line of this claim, correspond in position and effect with those of defendant's machine, and the Gray patent was distinguished from them, as it is from defendant's machine, by the limitations thus introduced into the claim.

The third claim was limited to the

> "Upright swinging sustaining arms *having their lower ends mounted on vertically adjustable pivots*, the latter thus serving *both to sustain and adjust* the rolls."

Thus making a formal distinction between the mechanical construction of the Gray patent and that shown in the principal figures of the Lake–Nemelka patents; the adjustable pivots being intermediate between the lower and upper end of the swinging sustaining arm, in most of the constructions shown, though in one figure of the Lake patent (Fig. 19, which seems to have been overlooked in allowing this claim) the eccentric pivots were shown as at the lower end of the swinging levers, giving a vertical adjustment (that is, perpendicular to the plane of the rolls) similar to that obtained by the devices shown in the Gray patent.

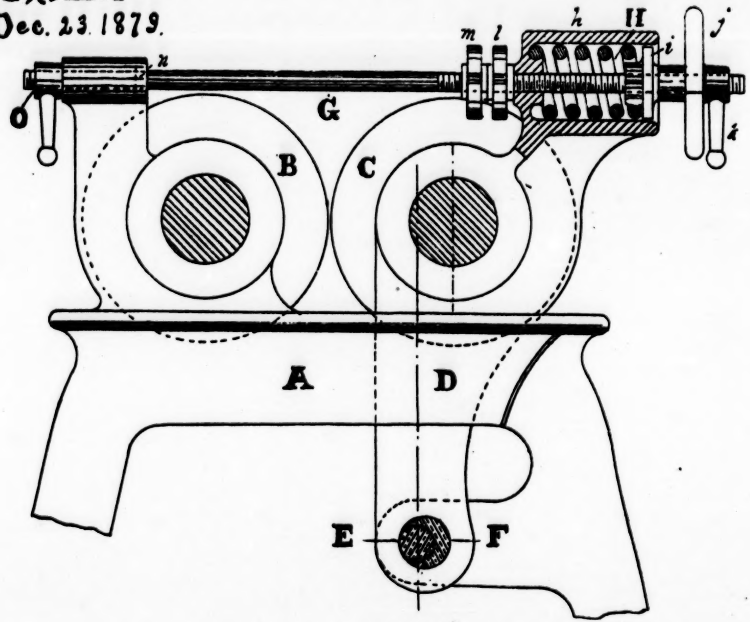
The fourth claim was limited, among other things, to *the rod G* (described as the means of spreading and restoring the rolls),

> "An *outside* spring urging the bearing inward, and *adjusting devices substantially such as shown*, to regulate the tension of the spring."

The Lake patent and other prior patents having shown the *inside* spring pressing outward upon the lower end of the lever, instead of the outside spring drawing the upper end of the lever inward.

GRAY PATENT

No 222895. Dec. 23. 1879.



A - Frame.

B - Fixed Roll

C - Adjustable Roll

D - Swinging Arm.

EF - Eccentric pivot for adjusting parallelism of roll.

G - Rod for adjusting distance of rolls and spreading rolls.

H - Spring.

i - Washer.

j - Wheel nut to adjust tension of spring.

k - Jam nut

l - Nut to regulate forward movement of roll.

m - Jam nut.

n - Piped step

O - Nut for spreading rolls.

The fifth claim was limited to:

> "*The adjusting rod, provided at one end with a stop to limit the inward movement, a spring, and means for adjusting the latter; and provided at the other end with a stop and holding devices, substantially as shown and described.*"

A sixth claim was introduced, confined in terms to

> "The combination of the bearing D, rod G, nut *t*, spring H, nut *j*, stop *n*, and nut *o*."

A seventh claim was made for (Rec., p. 267)

> "The combination of the arm D, eccentric sleeve F, and binding screw E."

This seventh claim was rejected as

> "For a common combination; shown *e. g.*, in the reference previously cited." (Rec., p. 267.)

Limitations were then inserted to:

> "The combination of the roller, *the upright supporting* arm D, the eccentric sleeve F, having the *lower end of the arm* mounted thereon, and the screw E *applied as shown, and securing the sleeve against rotary movement.*" (Rec., p. 267.)

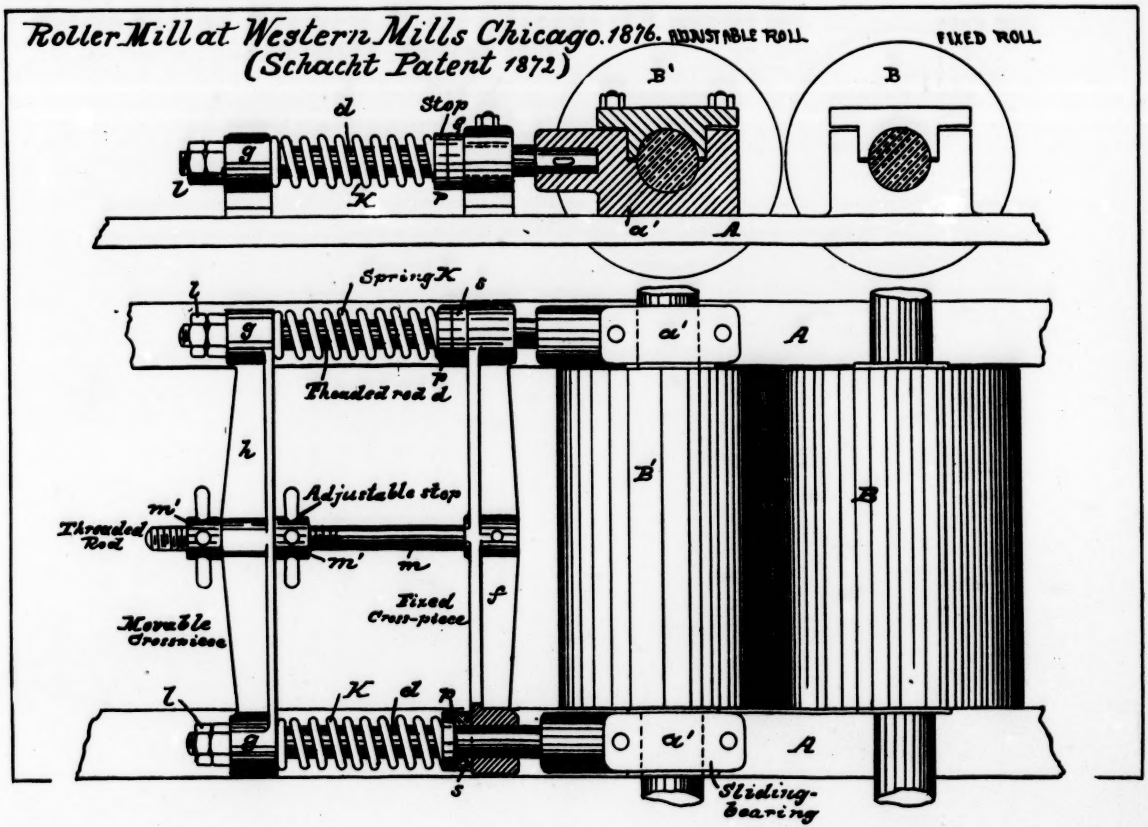
The transition in the fourth and fifth claims from the indefinite to the definite article in reciting the elements and the further emphasizing of this limitation by the words, "substantially as shown and described," taken in connection with the restrictive terms introduced into the specification, shows conclusively that these claims are limited to the specific construction and arrangement of the elements named.

The English Lake patent had used instead of a draw-rod to pull the rollers together, applied above the journal bearings, an eccentric that threw the swinging lever backward and forward, applied below its journal bearings. The Gray construction enabled the resistance to be borne

directly by the *tension of the draw-rod, which, when released, allowed the rolls to fall* apart by gravity, and when adjusted forward (according to the theory of complainant's witnesses, Gray and Putnam), avoided the tendency to jar, incident to applying the pressure from behind instead of by the tension of a pull-rod operating directly above the journal bearings.

The defendant (appellee) insists that these changes from a lever of one order to a lever of another order, and this transposition of the rod and spring, do not involve invention, but were the most servile exercise of mechanical judgment, and that the patent is, therefore, invalid for want of novelty; but as the defendant has followed the Lake and Nemelka construction in the particulars in which the Gray patent departs from them, using the same order of lever as was used in these older machines, placing the roller-bearing at the *upper* end of the lever instead of *between* the *supporting pivot and a tie-rod*, and having nothing corresponding to the combination defined in other claims, defendant further insists that the patent is incapable of covering defendant's machine. The limitations introduced into the respective claims as a condition of allowing them, define the distinction between defendant's mill and that of the Gray patent quite as explicitly as they do the distinctions between the Gray patent and the Lake patant.

Without these qualifications the patent is literally and completely anticipated, while with them it rests upon trivial and obvious mechanical constructions for effecting adjustments in themselves old in the same machinery, all of them before combined in the same machine and all of them effected by the patentee through the ordinary and well-known instrumentalities for such adjustments, with no new results whatever.


Roller Mill at Western Mills Chicago. 1876.
(Schacht Patent 1872)
ADJUSTABLE ROLL
FIXED ROLL
B'
B
Stop
d
g
l
g
K
r
α'
A
Spring K
s
Threaded rod d
h
Adjustable stop
m'
Threaded Rod
m
Fixed Cross-piece
f
Movable Crosspiece
Sliding-bearing

It was by the change of the relative arrangement of the pivotal points that the Gray patent was distinguished from those on which it had been rejected, and the invention for which the claims were allowed consisted solely in the change of these pivotal points, and in the substitution of a *tie-rod above the roller-bearing* for the outward pressing adjustable spring applied at the bottom of the lever, shown in Lake and Nemelka, and in *Die Muehle*, where a push-rod was used both for the purpose of adjusting the elastic spring coiled about it and to adjust and spread the rolls.

While the Gray construction lacks many of the advantages of the Nemelka and Lake, because of the absence of any provision for readjusting the grinding distance without disturbing the tram, or for spreading and returning the rolls by a simultaneous movement of both ends, it borrows from those patents all the adjustments which it contains. Where it does not copy literally, it paraphrases. It imitates, in a crude provincial idiom, what Nemelka had exhibited in what may well be regarded as a *classic* of milling mechanics.

The Gray patent is fully anticipated by the Nemelka and Lake patents, the only change made by Gray in respect to this claim being in the substitution for the adjustable spring support behind the levers, shown in those patents, of another form of spring support already known and used as a substitute in the same art. It is also, so far as concerns the claims here in controversy, literally anticipated, even to the form of spring and mode of adjustment, by *Die Muehle* of 1875 (which includes the use of the rod as a spreading and adjusting agent), by the Nagel and Kaemp patent, and the Daverio Italian patent of addition. It is substantially met by the Western Mills mill and the Schacht patent in evidence.

The Gray patent does not approach the measure of invention required to sustain a patent under the decisions of this court in

Pickering v. *McCullough*, 104 U. S., 310.
Atlantic Works v. *Brady*, 107 U. S., 192.
Pennsylvania Railroad Co. v. *Locomotive Truck Co.*, 110 U. S., 490.
Eagleton Mfg. Co. v. *West, Bradley & Carey Mfg. Co.*, 111 U. S., 490.
Morris v. *McMillan*, 112 U. S., 244.
Mahn v. *Harwood*, 112 U. S., 354.
Hollister v. *Benedict & Burnham Mfg. Co.*, 113 U. S., 59.
Stephenson v. *Brooklyn R. R. Co.*, 114 U. S. 149.
Thatcher Heating Co. v. *Burtis*, 121 U. S., 286.
Weir v. *Morden*, 125 U. S., 98.
Hendy v. *Golden State and Miners' Iron Works*, 127 U. S., 370.
Holland v. *Shipley*, 127 U. S., 396.
Crescent Brewing Co. v. *Gottfried*, 128 U. S., 158.
Ballard v. *Searls*, 130 U. S., 50.
Collins Co. v. *Coes*, 130 U. S., 56.
Aron v. *Manhattan Ry. Co.*, 132 U. S., 84.
Burt v. *Evory*, 133 U. S., 349.
Con. Roller Mill Co. v. *Walker*, 138 U. S., 124.
Ansonia Co. v. *Electrical Supply Co.*, 144 U. S., 11.
Corbin Cabinet Lock Co. v. *Eagle Lock Co.*, Off. Gaz., Vol. 65, p. 1066.
Knapp v. *Morss*, Off. Gaz., Vol. 65, p. 1593.
Howard v. *Detroit Stove Works*, Off. Gaz., Vol. 65, p. 1765.

Magin v. *Karle*, Off. Gaz., Vol. 65, p. 2060.
Giles v. *Heysinger*, Off. Gaz., Vol. 66 p. 171.
Wollensak v. *Sargent*, Off. Gaz., Vol. 66, p. 1007.
Haughey v. *Lee*, Off. Gaz., Vol. 66, p. 1450.

The proposition that a patent cannot be anticipated by showing a portion old in one prior patent and a portion old in another, has many qualifications very explicitly stated in recent decisions of the Supreme Court. Certainly where some claims of a patent refer to one adjustment of the machine, and other claims refer to distinct adjustments, each claim may be anticipated by a patent which illustrates that adjustment. Again, there is no invention in assembling in a single machine expedients for several independent adjustments which have each been used for the same purpose, and with the same mechanical effect, on older machines; or in substituting one old style of spring for another old style of spring to perform the same office. Again, where all the adjustments have been aggregated in one machine, it is perfectly competent to look at the publications and patents in the prior art to determine whether there has been anything more than the substitution of one for another known equivalent in effecting those adjustments, as distinguished from patentable invention. The mere aggregation in one machine of the means that had been employed in other machines for their several purposes, where each continues to serve the same purpose and has the same relative advantage which is possessed in the former, is not invention but mechanical selection.

In *Hale* v. *Van Wormer*, 20 Wall., 353, the Supreme Court says (p. 368):

> "Combined results are not necessarily a novel result, nor are they an old result obtained in a new and improved manner. Merely bringing old devices into

> juxtaposition, and there allowing each to work out its own effect without the production of something novel, is not invention."

The rule is more strongly stated against the patentability of aggregations of old elements, each contributing only its usual advantage, in *Pickering* v. *McCullough*, 104 U. S., 310. See especially p. 318. The Supreme Court there says:

> "In a patentable combination of old elements, all the constituents must so enter into it as that each qualifies every other; to draw an illustration from another branch of the law, they must be joint tenants of the domain of the invention, seised each of every part, *per my et per tout*, and not mere tenants in common, with separate interests and estates. It must form either a new machine of a distinct character and function, or produce a result due to the joint and cooperating action of all the elements, and which is not the mere adding together of separate contributions. Otherwise it is only a mechanical juxtaposition, and not a vital union."

In *Pennsylvania R. R. Co.* v. *Locomotive Truck Co.*, 110 U. S., 490, and in *Morris* v. *McMillin*, 112 U. S., 244, the rule that the application of an old mechanical means to its customary purpose was not patentable and could not be made so by any ingenuity exercised in framing claims was emphatically applied by the Supreme Court. In each case the specific combination claimed was confessedly new and useful, and the patent had been sustained below upon the theory that the useful result and the novelty of the association of the elements in a single machine were sufficient to support a patent.

In *Florsheim* v. *Schilling*, 137 U. S., 64, the patentee had modified and reorganized the elements with which he was dealing. He had used *metal spiral springs*, which were conceded to have advantages over the *elastic rubber*

cord before used, and made various other changes. The Supreme Court held unsound the argument (p. 77)

> "that the combination in this corset of the prior inventions secured and put into use by prior patents, making it a superior and cheaper article, is itself a patentable invention."

After stating the authorities to show that this was not sufficient to constitute patentable invention, and, after referring to the fact that each part of the device had been previously patented, it held both patents invalid, saying (same page):

> "It involved nothing original in the construction of those parts nor in their relation to one another, nor any change in the function of any one of them; and that the combination of them produced no original mechanism or device."

In *Fond du Lac County* v. *May*, 137 U. S. 395, the Supreme Court, reversing the court below, held a patent for a combination invalid, because the so-called combination amounted to a mere aggregation.

In *Busell Trimmer Co.* v. *Stevens*, 137 U. S., 423, the patentee had grouped together in one machine the advantages exhibited in various prior machines, making such mechanical changes as were necessary to bring them together. The Supreme Court, in holding the patent invalid, said (p. 433):

> "The evidence, taken as a whole, shows that all of those claimed elements are to be found in various prior patents—some in one patent, and some in another, but all performing like functions in well-known inventions having the same object as the Orcutt patent, and that there is no substantial difference between the Brown metal cutter and Orcutt's cutter, except in the configuration of their molded surfaces. That difference, to our minds, is not a patentable difference, even though the one cutter was used in the

metal art, and the other in the leather art. A combination of old elements, such as are found in the patented device in suit, does not constitute a patentable invention."

Again, speaking of the combination as a whole, on which the patent was predicated (p. 435):

> "The most that can be said of it is that it shows, on the part of Orcutt, great industry in acquiring a thorough knowledge of what others had done in the attempt to trim shoe soles in a rapid and improved mode, by the various devices perfected by patents for that purpose, good judgment in selecting and combining the best of them, with no little mechanical skill in their application; but it presents no discoverable trace of the exercise of original thought.
>
> . . . . . .
>
> "It may be admitted that Orcutt's later patent performed the work it was designed to accomplish in a better and more workmanlike manner than any of the preceding cutters patented, because, as already stated, there were constant improvements in the art to which it related. So far as this record shows, it was the last of a series of patents designed to accomplish the same object. As such, it necessarily retained all the beneficial features of those earlier patents, and, to a certain extent, improved upon them. Such improvement, however, was an improvement in degree only, and was, therefore, not patentable."

In *Collins Co.* v. *Coes*, 130 U. S., 56, and in many of the other cases above cited, the doctrine that mechanical alterations in effecting adjustments in themselves old, or the use of ordinary mechanical skill in providing adjustments of the parts of the machine, does not constitute patentable invention, was carried much further than would be required to defeat the Gray patent, even if limited specifically to the terms of its claims.

The selection of better materials or better known instruments for making the usual adjustments may improve

a machine in detail and confer just the advantages which these substitutes are known to possess; but such increased advantages do not constitute invention if due simply to the better quality of the agents selected, or unless some advantage different in kind from the contribution of each individual element is obtained, an advantage that involved more than the intelligent and skillful selection and application of known mechanical expedients. (See cases heretofore cited.)

Because the petty modifications to which the Gray patent was confined by the amendments made in the Patent Office may not be patentable, it does not follow that the patent is to be given a broader interpretation in order to sustain it. The binding effect of these limitations upon the patentee is none the less conclusive because they relate to immaterial variations, while the fact that they confine the patent to obvious mechanical rearrangements without any new result renders the patent invalid for want of invention.

As compared with the *Die Muehle* publication and the machine shown in figure 3 of that publication, and referred to in the description as a third Ganz mill, there was not even a rearrangement of any element referred to in the fourth claim other than the transposition of the adjustable spring-bearing rod from the lower end of the lever to the upper end of the lever, and the substitution of an outside spring pressing inward for an inside spring pressing outward (a transposition and substitution which this defendant has not adopted.)

It must be observed in reading this publication, *Die Muehle* of 1875, (Rec., p. 273), that the successive mills referred to are Wegmann mills from the manu-

factory of Ganz & Company. *First*, referring generally to these Ganz mills, it speaks of their

> "capacity of regulating the distance of the rolls from each other, which is a very weighty exigency, in order to be able to control the crushing at will, so that with constant pressure a more or less strong crushing of the middlings particles will result."

It then speaks of the outer rolls as run in movable lever-bearings in which the

> "Pressure is obtained by means of weights through bell-cranks which bear upon the above-mentioned lever-bearings."

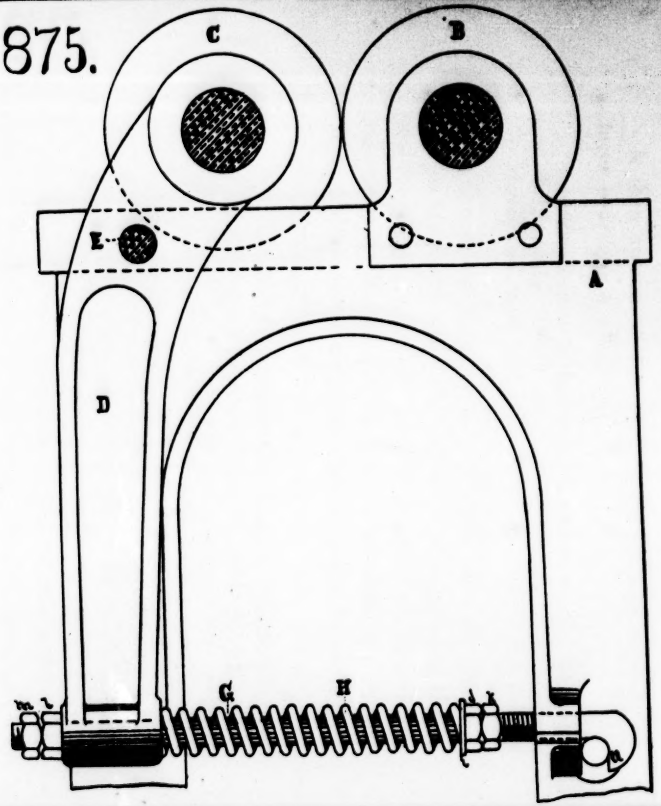
In describing the machines in which weights are used for giving elastic pressure, and the roll-supporting levers are thrown apart and restored by means of a hand-lever (the same construction as that shown in the Mechwart patent, and illustrated in the Mechwart model in evidence), it says (Rec., p. 273):

> "A further improvement is this: that the outer rolls can be moved away from the inner by lifting of the weight levers by means of chains which depend from a crank shaft. This small shaft is arranged to be turned by means of a small hand lever through 180°. This appears to great advantage for the starting of the machine, in order not to let this be driven under full pressure."

Then it proceeds with a description of the third mill, that shown in Fig. 3, where the spring is substituted for the weights:

> "The third mill from the Ganz manufactory is provided with only one pair of rolls, but still after the Wegmann system. These rolls are 8¼ inches in diameter and 20 inches in length, and it is expected through these large dimensions to obtain a larger capacity than by means of the heretofore known double roller mills of smaller dimensions. The

DIE MÜHLE 1875.



A Frame.
B Fixed Roll.
C Adjustable Roll.
D Swinging Arm.
E Pivot.
G Tie Rod.
H Spring.
i Washer.
j Nut for adjusting Tension of Spring.
k Jam Nut.
l Nut for adjusting distance of rolls.
m Jam Nut.
n Feed Stop

> pressure is obtained in this last machine by means of a lever with a spring, and in this machine also the pressure can be lifted by the movement of a hand-lever. The frame of this mill has no wood-work about it, but is completely built in iron."

The rod which bears against the lower end of the lever and holds it to its work, in the third mill (Fig. 3), has about it a coiled spring, the spring being adjusted to different tensions by means of nuts upon it at the right of the spring, while the rod itself is adjustable to different lengths so as to throw the roll nearer to or further from the fixed roll by means of the nuts on the left of the lever. Here is the movable roller-bearing mounted in the upper end of the lever, the rod supporting the lever in position, and adjusting it to and fro, the adjustable stop device to limit the inward movement of the bearing (the nuts on the end of the rod on the left), an *inside* spring urging the bearing inward (the arrangement of spring that the defendant uses), and adjusting devices (the nuts at the right of the spring) corresponding *identically* with those of the Gray patent to regulate the tension of the spring.

As complainant's expert contends (and is obliged to contend in order to charge infringement) that the devices for moving the rod endwise and restoring it to position are not included in the fourth claim, it is immaterial whether we regard this machine as having the hand-lever to throw the rolls apart and return them, as described in the publication. That hand-lever is not an element in this claim, but the drawing shows an eccentric cam engaging with the rod at the right-hand end, and the description states that in it, as in the other machine,

> "The pressure can be lifted by the movement of a hand-lever."

The removal of the pressure referred to in the description of the other machines as effected by the hand-lever, is the release of the pressure that holds the rolls together, so as to spread them. If the drawing did not indicate any particular means of applying the hand-lever for the purpose of spreading the rolls or releasing the pressure, the application of such a lever for that purpose (after the direction to apply it had been given in connection with the description of the mill, as it has in this publication) would be within the province of ordinary mechanical skill and intelligence, but a mechanic could hardly look at this drawing without understanding at once just how this lever was to be applied. The eccentric cam shown under the lower end of the rod has obviously only to be turned to and fro to spread and restore the rolls, and the statement that this is to be done by a hand-lever tells the whole story.

The description in a prior publication, whether by drawing or verbal, is sufficient if it would convey to a person skilled in the art adequate instruction to enable him, by the exercise of ordinary mechanical intelligence and skill, to carry out the plan and construct an operative machine. In *Pickering* v. *McCullough*, the Supreme Court, in meeting the objection of insufficiency in the prior patents, says (104 U. S., 319):

> "It is objected, however, that the machines described in these patents are mere paper machines, not capable of successful practical working. But on examination it sufficiently appears, we think, that the objections can be sustained only as to minor matters of detail in construction, not affecting the substance of the invention claimed, and could be removed by mere mechanical skill, without the exercise of the faculty of invention. In this view, the Wise and Smith patents are not rendered inefficient as defenses

in this suit, by reason of the alleged imperfections of the machines described in them."

The Daverio Italian patent of addition of March 15, 1878 (Rec., p. 298), has the movable roller-bearing mounted in levers, rods (marked D), passing through the end of the swinging levers, which are independent levers at each end of the machine, a coiled spring wound about these rods pressing the roller-bearing inward, and adjustable stop devices to limit the inward movement of the bearings (the set-screws placed on the opposite side of the lever A), outside springs urging the bearing inward (the coiled springs on the rod D, above referred to), and adjusting devices similar to those in the Gray patent (nuts on the rod D, to regulate the tension of the spring).

The same elements are found in the English Pieper patent (Rec., p. 327), where the rod and adjustable coil spring on it correspond literally to Gray's, except that, as in defendant's, the rod is not a *tie*-rod and is not moved endwise to spread the rolls. Complainant's expert objects to this last mentioned patent on the ground that there are not independent springs at each end of the roll. These objections would not apply to either the Lake and Nemelka or other prior patents mentioned, or to the *Die Muehle* publication; but it is evident, *first*, that the fourth claim of the Gray patent is not limited, either by terms or implication, to independent springs at each end of the roll, or to independent levers; *second*, that the office performed by the combination recited in this claim is not affected one way or the other by the independence of the springs or levers at each end of the roll. The second claim of the patent, which is concerned with the tramming operation (which complainant's expert concedes that this claim does not include), refers in terms to the independent arms. But the fourth claim refers to the rod G in the singular,

and to the spring in the singular, and is carefully framed to avoid any limitation to the presence of more than one spring, or more than one rod, or more than one lever. Indeed, it carefully abstains from making the lever an element. The same is true of the two succeeding claims, both of which, like the fourth, relate to combinations for spreading the roll, and abstain from any reference to the independence of the springs at each end.

It is obvious that where it was already common to use either independent springs, or a single spring bearing upon both levers, or a spring bearing upon a single lever extending to both bearings of the roll, the claim could not be sustained for applying to the independent levers the particular spring or spring-adjustment that had before been applied to a single lever for the same purpose, whatever might have been the case if the patentee had been the first to apply any adjustable spring to each lever independently. There is nothing in the specification of the Gray patent and nothing in the fourth claim that can by any possibility distinguish the combinations there referred to from that exhibited in either of the above recited patents, unless it be the location of the tie-rod G above the roller-bearing with its *outside* spring, and its agency as a a spreading and restoring device. In these respects the distinctions from prior machines are not such as to constitute invention, but they are immaterial for the purposes of this case, since the defendant has not adopted either of them.

The effort to make it appear that there is any superiority in the Gray construction as compared with the Nemelka and other prior patents is futile. The fact is the reverse. A glance at the Nemelka machine shows that in every respect in which it differs from the Gray machine it is for the better rather than for the worse; that it was

capable of much more convenient, accurate and delicate adjustment. The reasons which complainant's witnesses give upon cross-examination for the merit of the Gray machine have reference altogether either to features not embraced in the patents in suit or features that distinguish the Gray from the defendant's machine. They lay stress upon the use of a *tie-rod* which resists the outward thrust of the rolls by tension, as distinguished from a push-rod which might buckle; upon the location of this rod *above* the roller-bearing, so that its pressure is applied on the opposite side of that bearing from that at which the pivot is located; upon the *fineness* of *thread* in the screw used; upon the use of *belts* for driving the machinery, instead of gearing; upon the *solidity of construction* of the machine as preventing tremor; upon the use of a *through-shaft* by which both ends of the roll are moved at the same time, which was not shown in the Gray patent, but was in Nemelka, etc. If this distinction in position and office of the tie-rod is material, it has been left to the exclusive possession of Gray. The manufacturers have adhered to the plan of the Nemelka and other older machines in this respect. As to the advantage of the belt-drive, Gray undertook to patent it in a subsequent patent. The patent seems to have borrowed its language from a publication in the *Die Muehle*, describing the comparative advantages of a belt-drive and a gear-drive. He failed to obtain a patent covering the belt-drive, and the patent which he did obtain upon that application, limited to a specific construction, is not charged to be infringed by this defendant. It has been held invalid by the Supreme Court in *Consolidated Roller Mill Co.* v. *Walker* (138 U. S., p. 124).

The importance of having the grinding agents, whether millstones or rollers, adjustable to parallelism has been

fully known to millers and mill constructors almost as far back as the art reaches. The means of adjusting shafting of all kinds to alignment or parallelism, as well as for adjusting rollers and millstones, have been familiar mechanical expedients. The general adherence to millstones in this country prior to 1875 was not due to any difficulty in making such adjustments, or to ignorance of the advantages of preserving the alignment; nor has the rapid introduction of roller mills since that day been dependent upon any particular method of making these adjustments. No two mill manufacturers make them in the same way. Each employs such expedients for the purpose as the style of mill which he is building makes most suitable. The explanation of the rapid increase in the use of roller mills is not found in any peculiarity of adjustment to parallelism or provision for elastic pressure. The question whether elastic pressure is desirable or not is one about which millers still differ. Putnam, complainant's expert, who testified so strongly about the importance of springs, had to confess that in his own mill, one of the large mills of the country, he ran his roller mills without springs, and he purposely took them out and ran them without. (See affidavit of Simpson, Addition to Rec., p. 20; Putnam letter, Addition to Rec., p. 21; stipulation, Rec., p. 23.)

The change from what is now known as low milling or single reduction, to high milling or gradual reduction, which came contemporaneously with the introduction of middlings purifiers, brought with it the transition from stones to roller mills, the latter having been extensively used abroad before they were introduced here. This system of milling required much larger plants and much more expensive equipment than the method of milling that had prevailed in this country. As the middlings

purifiers and the system of gradual reduction began to be adopted, roller mills, which had long been known in Europe, were introduced for making the intermediate grindings between the successive treatments on the purifiers, as well as for making the coarser breaks and final reduction. The question which mainly occupied the attention of roller-mill manufacturers related to the particular surface or dress to be given the rolls, or the means of forming this surface or dress, the manner of driving the rolls with respect to each other, and the immediate treatments which the grain received between the different breaks. Some of the earlier rolls had a sharp or cutting dress, or ribbed or toothed surface, and it was a matter of experiment for some time to determine whether such a dress, or smooth rolls, metal rolls or porcelain rolls, rolls with straight ribs or with spiral ribs, rolls with ribs running in the same direction as those on the adjacent rolls or with ribs running crosswise, rolls driven at uniform speed or differential speeds, would best answer the purpose, and at what stage of the operations one style of rolls should be used and at what stage another style. The satisfactory determination of these problems was awaited by many of the millers before reorganizing their mills. After the roller mills began to be introduced, there was delay about manufacturing them in this country, occasioned by the difficulty of finding places where the proper surface or dress could be formed on the rolls. It required peculiar machinery to do this work, and machine shops had to be started in which it could be done economically.

Prior to 1878 there was but one establishment in this country where the dress of the rolls could be suitably cut, and that (at Ansonia, Conn.) had but limited facilities for such work. The greater facilities for producing such rolls and the difficulty of obtaining millstones of a

suitable character, have contributed to facilitate the transition from stones to rolls. Roller mills had, however, come into use quite extensively in this country early in the seventies. Gray, the patentee, testifies (Rec., p. 89):

> "The introduction of the purifiers in this country in the manufacture of flour, about 1871 or 1872, necessitated the grinding of the wheat upon the stones by a system of gradual reduction, which system was also imported from Europe. The most advanced miller at Minneapolis, which is the center of the hard-wheat country, thought that the wheat could be reduced by this system of gradual reduction, by the use of rollers, better and more economically than by the use of millstones. After trying it this result was found to follow, and then all the millers adopted the system."

He says that this took place before his invention. (See same answer; see, also, dep. Freischmidt, Rec., p. 77, X. Q. 14–28; dep. Miller, Rec., p. 69, A. 75–78.)

In Gray's patent No. 238,677, in evidence, the provisions for adjustment are spoken of as of minor importance as compared with those for differential speed and the dress of the rolls.

It is submitted that the patent must be either held absolutely invalid in respect to the subject-matter of the claim in controversy, or limited to the specific construction which this defendant does not use.

No Infringement.

The only claim of the Gray patent No. 222,895, which complainant's expert undertakes to stretch to cover the defendant's machine, is the fourth, as follows:

> "In combination with the movable roller-bearing, the rod G, adjustable stop devices to limit the inward movement of the bearing, an outside spring urging the bearing inward, and adjusting devices,

substantially such as shown, to regulate the tension of the spring."

Counsel for complainants, however, undertook to go further than his expert, and argued that both the fifth and sixth were infringed. Where so facile and willing an expert did not venture to assert infringement, and where complainant's counsel saw no grounds for such a charge until elation over the decision in the Combs case suggested that all the limitations of the patent might be disregarded, these claims would not seem to need much attention. They are:

"5. In combination with the roller-bearing, the adjusting-rod, provided at one end with a stop to limit the inward movement, a spring, and means for adjusting the latter, and provided at the other end with a stop and holding devices, substantially as shown and described.

"6. The combination of the bearing D, rod G, nut *l*, spring H, nut *j*, stop *n*, and nut *o*."

The exactness with which each of the claims was limited to the specified construction and location of the recited elements in order to avoid rejection on the Lake-Nemelka patent, has already been pointed out in the citations from the Patent Office files under the preceding head. If distinguishable at all, it was in tying the upper end of the swinging lever to the housing of the opposite roll by a rod which held it by tension, instead of merely forcing it against an adjustable stop by spring pressure applied from behind, or to another arm of the lever, as was done in several of the Nemelka machines and in the Pieper, the Bentall, *Die Muehle* and others. With these limitations they were, except as to exact location of the rod G, and its action as a *tie*-rod instead of a *push*-rod, completely met by the prior art not referred to in the Patent Office (such, for instance as

the *Die Muehle* publication, the Pieper English patent, the Daverio Italian patent of Addition, the Western Mill and the French Nemelka patent). The fourth and fifth (those relied upon in the Coombs case) were treated by the Michigan court as limited to the case where the rod G was the means of "spreading" the rolls, by endwise movement, as well as of adjusting for grinding distance. This is more distinctly expressed in the decision in the Smith case before referred to.

The only machine of defendant's charged to infringe is that in evidence as the Barnard & Leas Roller Mill No. 2. Complainant's expert has in terms, as he was obliged to do, rejected the limitation to vertical adjustment. He is asked in cross-examination (Rec., p. 56, X Q. 37):

> "Is any device for independently adjusting the height of the movable roll at each end, included in that fourth claim?
> "A. No, sir."

The limitation of the claim to the *outside* spring urging the bearing inward was introduced into the claim after the rejection on the Lake patent, which showed an *inside* spring applied to the lever below the roller bearing so as to press the lever outward and thus force the roller bearing inward, in the manner of the defendant's and the *Die Muehle*. It was also the distinction between the Gray arrangement of spring and the *Die Muehle*. Unless the limitation thus introduced is so construed as to render it inoperative, it is fatal to the charge of infringement.

The subject of invention is, in the statement at the head of the specification, divided into two parts, one relating to the adjustments to compensate for wear, the

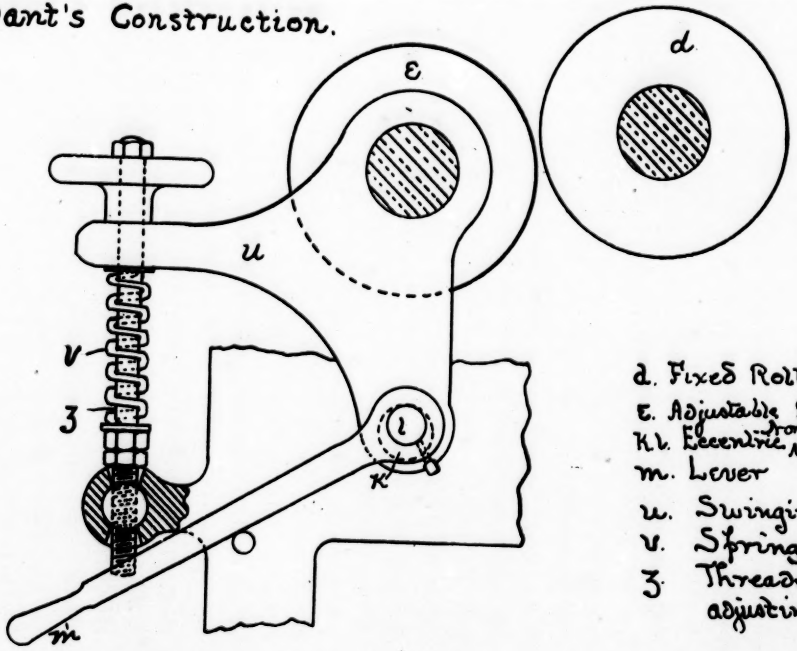
other consisting "in the *special* devices for separating the rolls when not in action," the word *special* having been introduced after rejection. It is to the latter class that the fourth claim relates. The "rod G" is a rod passing through the upper end of the box on the movable roller and extending thence to the box of the fixed roller, serving to tie the two together so that any strain encountered in grinding will be resisted by the *tension* of the rod and sustain the roller at a point on the *opposite side of the bearing from that where the pivot is located*, and is provided at the end which is connected with the fixed box, with a means for instantly releasing and restoring to position, so that it constitutes the *spreading* device of the rolls. In this character of *tie*-rod and *longitudinally moving spreading* device it is distinguished from the spring-carrying rods which hold the rolls to position in the Daverio patent, and the adjustable outward-pressing springs applied to the levers of the Nemelka and Lake machines, but it corresponds in this spreading capacity with the spring-carrying rods of the *Die Muehle* mill and of the Pieper patent, both of which seem to have been overlooked in the Patent Office. It also corresponds in this respect with the spring-carrying rods of the Western Mill and the Schacht patent. The witness who testified in behalf of complainant laid great stress on the advantage of this *tie-rod* as distinguished from a *push-rod*, as a means of supporting the rolls in position and spreading them, and the advantage of having this support *placed where it is in the Gray patent* (namely, just above the roller-bearing), so as to afford nearly a direct tension between the two roller-bearings and to support the movable roller-bearing on the opposite side from that where the lever is pivoted, as constituting one of the

chief merits of the Gray construction. (See dep. Putnam, Rec., p. 116, X Q. 127–134.)

Not only does the term "*the adjusting rod*" in the fifth claim, when read in connection with the specification, refer to the fact that this rod is the instrument for spreading the rolls and returning them to position, but this is further emphasized by specifying that it is *provided with a stop and spring "at one end"* and *at the other with "stop and holding devices* substantially as shown and described." The stop and holding devices referred to are the shoulder and the nut by which the rolls are spread and returned, and the location of them *at the opposite end* from the spring is for this purpose. The terms of each of the claims, as well as the circumstances under which the limitations were introduced, constantly emphasize the fact that *location* and specific construction were all that they were intended to cover. The "*stop n*" and "*nut o*" of the sixth claim are the shoulder on the end of the rod and the nut for disengaging the tie-rod to spread the rolls.

In the defendant's machine, the part which complainant's expert undertakes to treat as the equivalent of the rod G is neither a tie rod nor a spreading device; nor is it extended from above the journal-box of the movable roller to the journal-box of the stationary roller; nor does it afford any support to the lever above the journal-bearing. It is like the adjustable coiled springs applied to the levers of the Daverio patent and the adjustable rubber springs applied to the levers of the Lake patent, both in its office and in its location. It is much more remote from the Gray than from the Nemelka. It does not approach the Gray machine in either respect as closely as do the constructions of the *Die Muehle* machine, the Daverio patent of addition, the Pieper patent, the Western Mill or the Schacht patent. The means of spreading and

Defendant's Construction.



d. Fixed Roll.
ε. Adjustable Roll.
k. Eccentric Adjustable Pivot.
m. Lever
u. Swinging Arm.
v. Spring
3. Threaded Rod for adjusting Spring.

restoring to working position the movable roller of defendant's machine is identical with that in the Nemelka patent and the Lake patent, that is, by turning the eccentric shaft on which the roller is mounted, by means of a hand-lever applied to that shaft, as in those machines. The turning of the shaft on which the swinging levers are mounted oscillates the levers and spreads the rolls precisely as in the Nemalka. In Gray, the turning of the pivot on which the swinging arms are mounted changes the level of the roll but does not spread it, and the tie-rod is required as the means of spreading. In Nemelka and defendant's mill the turning of this pivot does not change the level, but spreads the rolls while having no effect on their parallelism. The grinding distance is adjusted in defendant's mill by one of the means described in the Lake and Nemelka patents where the adjustment is made at each end separately, namely, the turning of vertical screws which limit the inward movement of the levers carrying the movable roll. The construction in this respect approaches much more closely to the Pieper patent than it does to the Gray. It corresponds with the *Die Muehle* publication in every respect except that the rod on which the spring is adjusted and by which the adjustments to greater or less grinding distances are made is not, as both in *Die Muehle* and in the complainant's patent, the means of spreading the rolls. In every particular in which it resembles the spring-carrying rod of complainant's patent, it resembles that of *Die Muehle*. It corresponds with the *Die Muehle* and differs from Gray in that it is an inside spring as distinguished from an outside spring, and in that it is applied below the journal-bearing instead of above; but it differs from both in that it is not the means of spreading and restoring the rolls as that of *Die Muehle* and that of Gray are.

It is more remote from the rod G of the Gray patent than was the spring-carrying rod of the Smith machine, which his Honor, Judge Brown, held not to contain the invention of the patent, though stating that all the adjustments referred to in each of the claims of the patent were present. As there is no spreading rod, there is no shoulder or stop on either end of any adjustment rod, and no nut on the end of such a rod for the purpose of releasing it.

Gray's trip abroad, which took place before his application for patent, and before he had taken any steps toward embodiment of the invention, and before he claims to have conceived of his spreading device, appears to have been for the purpose of visiting the milling centers of Europe, at all of which he found the roller mills in use. He found roller mills of the Mechwart and Ganz pattern in general use in Buda Pesth, the place where the superiority of milling had attracted such attention as to force the adoption of the roller mill system in this country prior to his invention. (Dep. Gray, Rec., p. 89, X Q. 91; p. 82, A. 36–39). He had already been engaged in the manufacture and sale of the Wegmann porcelain rolls before he made this invention. (Rec., p. 72, A. 13–15).

Freischmidt, another of complainant's witnesses, testifies as follows (Rec., p. 77):

> "X Q. 14. Was not the Wegmann roller mill introduced into this country before what you call the Gray system?
>
> "A. Yes.
>
> "X Q. 15. Was not the advantage in the Gray rollers that they were of chilled cast iron instead of porcelain, like Wegmann's?
>
> "A. Yes.
>
> "X Q. 16. Is it not a fact that the adoption of roller mills in this country was forced by the superiority of the Hungarian system of milling with rolls at Buda Pesth?
>
> "A. Yes."

The entensive use of the Downton, Daverio, and Wegmann rolls, both before and since the date of the Gray patent, is expressly admitted by complainant's witness, Miller (Rec., p. 69, A. 75–78, and A. 67–68; also p. 67, A. 48–49; p. 68, A. 53).

Complainant's witness Putnam admits that rolls were supplanting millstones in this country as early as 1878; that the Downton rolls were known to him before the Gray; and that he knew through the milling papers that rolls were being used in this country prior to that time, among them the Ganz rolls and the Wegmann rolls; that the cause of American millers adopting the rolls was that (Rec., p. 111)

> "the idea was promulgated that better flour could be made by the use of rolls than stones,"

and this was

> "based on the fact that the spring wheat crop in this country very much resembled the Hungarian wheat, where rolls were being extensively used for the manufacture of flour, and the spring wheat in this country was not yielding very satisfactory flour by the use of millstones;"

that it was known before the introduction of rolls into this country that "rolls were being used in the manufacture of flour for many years" at Buda Pesth; and that the rolls used there were the Ganz or Mechwart rolls. (Dep. Putman, Rec. p. 111, A. 75–93.) He also admits that he has continued to use down to the present date, side by side with the Gray mills, the Stevens mills, in which the rolls are mounted and adjusted in sliding boxes (a mode of mounting and adjusting illustrated in prior patents as far back, at least, as the fifties).

The publications in evidence, such as *Dingler* (published in 1857), *Die Muehle* (published in 1875), *Pappen-*

heim (published in 1878), and *Kick* (published in 1878), show that roller mills possessing the general characteristics of modern roller mills were in general use in Europe for some twenty years at least before the alleged Gray invention; that they were used in large numbers in the Buda Pesth and other mills, and had already substantially superseded the millstones in some, at least, of the milling centers.

The adjustable stop mentioned in the fourth claim is not a fixed stop, but is the nut by which the grinding distance or the alignment can be changed, a nut which has its precise counterpart in the older machines, and which is not disturbed by the spreading and returning of the rolls in the older machines to which reference has been made. The fixed stop in the Gray machine is the shoulder on the end of the tie-rod which limits the endwise movement of the tie-rod when it is pulled longitudinally by the eccentric or hand-wheel. It has no counterpart in defendant's machine, where the limit of the movement is, as in the Nemelka and Daverio and other prior machines, determined by the arc over which the hand-lever is swung. In the Nemelka and Daverio there is an abutment against which this hand-lever strikes to limit the extent of its inward movement, just as there is in defendant's machine. The Nemelka has the advantage over both the defendant's machine and the complainant's in that the limit of the inward movement can be arbitrarily set back, if desired, but this does not interfere with the limit remaining precisely the same wherever it is set, so that, when the grinding distance is once determined upon, the turn of the hand-lever will always bring the roll to exactly the same grinding distance as before it is spread, and cannot carry it further. There are several independent and alternative methods provided in the Nemelka and

Lake patents for fixing the limit of this inward movement.

A fixed stop to limit the approach of the grinding surfaces (such as an abutment to limit the swinging lever, or a set-screw) is a matter of course in any machinery where grinding or cutting surfaces are to be brought near each other, and would not involve patentable invention if for the first time applied to a roller mill. But such stops are found in the roller mills in evidence from the earliest down to the latest of the prior patents. They are both illustrated and described in, among others, the English Bentall patent of 1859, are shown in the Daverio patents, in the Nemelka and Lake patents, and in the *Die Muehle* publication. The use of an adjusting lever for swinging rolls to and from each other carries with it, to any ordinary mechanic, the suggestion of some abutment to limit the swing of that lever. No man could have a patent covering broadly the use of a stop to limit the swing of a lever, if he had been the first to apply such a stop to the particular machine with which he was dealing. But Gray has not done this. No patent has been granted him for such a stop. The only claims of his patent which refer to the stop (the fifth and sixth) are specifically limited to the shoulder on the opposite end of the tie-rod from that at which the spring is applied, which is brought in contact with the upper portion of the stationary box by the longitudinal movement of this rod through the recess in that box. It is so plain that the defendant has not borrowed this construction, but has used the Nemelka method of spreading and returning the rolls by the oscillation of an eccentric shaft, that complainant's expert and complainant's counsel apparently thought it was hopeless to charge infringement of these claims at the time of taking evidence.

The drawing of the French Nemelka patent shows the hand-lever coming in contact with the box of the roller-bearing when the roll is at its nearest point of approach. This is precisely the stop which defendant is charged with using. If this is a fixed stop in the defendant's machine, it is a fixed stop in the Nemelka. The lever of the Nemelka can be set in different positions, so that this stop would arrest the movable roller at a greater or less distance from the fixed roller, just as well as in the defendant's machine.

In the Gray machine the point at which this fixed stop will operate depends upon the adjustment of the elements by which the alignment of the rolls to the grinding distance is secured, precisely as it does in the Nemelka machine, and if it is necessary that the parts instrumental in determining the point at which the rolls shall stop in their approach to the fixed roll shall have no other office or adjustment except that connected with spreading and returning, the machine of the patent does not fulfill that condition. If it is intended to include under the designation "the rod G," any spring-bearing rod applied to support and adjust the movable roll of a roller mill, nearly every prior patent and publication shows either such a rod and spring used for this purpose, or the familiar mechanical equivalent for it.

That the peculiar construction and operation of the elements specified by literal designation in the claims can not be disregarded in construing those claims when the specification represents the invention to consist in those special devices, has been often decided by the Supreme Court.

In *Weir* v. *Morden*, 125 U. S., 98, the question of infringement turned upon whether the "two center rails B B', joined to form the V-shaped point" mentioned in the

second claim, necessarily meant two center rails having the peculiar construction described in the specification, or whether the claim was satisfied by any two center rails joined to form the V-shaped point, corresponding in terms to the remaining language of the claim; and the argument for the patentee was that, as the third claim had recited in terms the peculiarities of these center rails, B B′, and the second claim had not so recited them, the inference was that the second claim was not limited to the peculiarities mentioned in terms in the third claim. The court, overruling this argument, held that the two center rails, B B′, must mean, *as well in the second claim* as in the third claim, rails *having the peculiarities of construction described in the specification.* The Supreme Court quoted with approval the language of the court below, as follows (p. 105):

> "'It will thus be seen that minute directions are given as to the construction of the two center rails, B and B′, to form a V-shaped point, and I am of opinion that the two center rails B and B′, described in the second claim, are the rails constructed and joined according to the description given in the patent. The language of the claim is, 'the two center rails, B B′, joined to form a V-shaped point.'"

The Supreme Court, after further quoting from the court below, proceeds in its own language as follows (p. 106):

> "The claim refers specifically to the 'two center rails, B B′, joined to form the V-shaped point.' This points explicitly to the drawings, on which the two center rails are designated by the letters, and also the mode in which they are shown by the drawings and the description in the specification to be joined, and excludes the idea of constructing a frog, such as is intended to be covered by the second claim, of any other center rails than those thus pointed out and described. The patentee by this

mode of description and of claim has made the center rails, formed and connected in the manner described to make up the V-shaped point, an essential part of the invention intended to be secured by the second claim.

"An argument against this construction, made by the counsel for the appellant, is based upon the language of the third claim. That claim is for the channel pieces D extending and bolted or riveted together beyond the point of the frog and connecting rivets C, which extend entirely through the two-point rails and the channel pieces, 'in combination with the point rails B B', fitted to each other as described.' It is admitted that the language of that claim limits it to the point rails formed and connected together so as to make the V-shaped point, according to the specific manner described in the specification and shown in the drawings, and that it does not cover center rails of any other description. This limitation is based upon the words 'fitted to each other as described.' It is argued that as this phrase is omitted from the second claim, the contrary inference must prevail, so that that claim may be permitted to extend so as to embrace all center rails joined to form the V-shaped point, however they may be fitted to each other. But this variation of language does not seem to us so significant. The second claim, by the use of the phrase at its close, 'substantially as shown,' limits its application quite as effectually to the particular kind of center rails described in the specification and covered by the first claim; and the reference therein to 'the two center rails B B' joined to form the V-shaped point,' can only mean such point rails as are shown in the drawings marked B B', and joined to form the V-shaped point referred to in the drawings and described in the specification 'substantially as shown.'"

In *Hendy* v. *Golden State and Miners' Iron Works*, 127 U. S., 370, the claim was for "the feeding cylinder I, mounted upon the movable timbers H H, substantially as and for the purpose above described." The specification

had described the feeding cylinder I as having its outward surface formed into chambers or depressions. This feature not being recited in the claim in controversy, it was contended in behalf of the patentee that the claim was not limited to it. The Supreme Court (p. 375), after referring to the fact that the cylinder I was described as having these chambers or depressions, said:

> "The defendants' machine has a smooth cylinder, and not a cylinder with chambers or depressions. The specification of the patent describes the cylinder I as having its outer surface formed into chambers or depressions, separated from each other by longitudinal partitions. The cylinder of claim 1 is 'the feeding *cylinder I*', *and to be such cylinder, must be a cylinder substantially as described*, and it is described *specifically as having chambers or depressions.* The claim cannot be construed to cover a cylinder with a smooth surface not formed into chambers."

In *Fay* v. *Cordesman*, 109 U. S., 408, the Supreme Court said (p. 420):

> "If the patentee specifies any element as entering into the combination, either directly by the language of the claim, or by such a reference to the descriptive part of the specification as carries such element into the claim, he makes such element material to the combination, and the court cannot declare it to be immaterial. It is his province to make his own claim and his privilege to restrict it."

Gray, in his application as originally filed and sworn to, nowhere intimated that his invention consisted in any improvement in the spring pressure, in the construction of the spring, in the mode of mounting the spring, or in the mode of regulating the spring pressure. His application admits, by implication, that the springs and the mode of adjusting them were not invented by him but adopted from the older art. In his statement of invention, no

reference is made to the springs or to the method of adjusting them. In his claims, as originally presented, no reference was made to them or their adjustment. Throughout his statement of invention and his claims, his invention is represented to relate to the placing of the pivot in front of the roller, to the vertical adjustment of the pivot, and the combination of these with the horizontally adjustable roll, and the means "of drawing the roll C to a fixed point," that is to say, the spreading rod G. The springs, adjustable to tension in the manner he shows them, are assumed throughout the specification and claims to be old, as he knew them to be. The fact that they were old and that the coil spring adjusted by a nut on the rod which it moved was a familiar equivalent for the rubber spring encircled by a sleeve and adjusted by a screw (the style of adjustable spring illustrated by Nemelka as used for the same purpose) has been abundantly shown.

Gray, in his testimony, places the date at which he made the first drawing containing the invention recited in the fourth claim of his patent as May 15, 1879. (See Rec., p. 84, A. 49–53). He had just returned from Europe, where he had visited the Ganz and Wegmann mill factories, to which *Die Muehle* refers as producing the mills illustrated in the drawings above described. The language of his patent indicates that he understood perfectly well that he was simply copying from those machines, in respect to the spring adjustments and the methods of setting the rolls to different distances. He, therefore, confines his statement of invention to other features of the machine. (See dep. Gray, Rec., p. 82, A. 35–36; Gray files, Rec., p. 261–269.) If the amended claims embrace what was not covered by the application as sworn to, they are invalid. (*Eagleton Mfg. Co.* v. *West, Bradley & Carey Mfg. Co.*, 111 U. S., 490.)

All the references to the springs that are made in the claims of his patent were introduced by his solicitors after his specification was on file. They were no part of the invention as the application was sworn to by the applicant, no supplemental oath was ever filed; and, if the springs or the method of adjusting the springs were to be treated as in themselves features of novelty in this combination, the patent for them would have been obtained without the oath of the inventor. The practice of the Office requires that wherever claims are made dependent upon the invention of subject-matter not claimed in the original application, a new oath must be required. This is necessary to meet the conditions of the law, otherwise an applicant could, by describing in his application elements which he was unwilling to swear that he was the inventor of, place it in the power of his solicitor to obtain a patent upon those very elements without the sanction of his oath. If a construction can be given to the claims that would bring them within the terms of the law, they must receive that construction. This can only be done by treating the invention referred to in the fourth claim as confined to a combination in which the rod G performs the office referred to as the subject of this part of the invention, that of "separating the rolls when not in action" and of returning them to their original position.

In order to find for complainant on this patent, it is necessary:

1. To reject the findings successively of Judge Blodgett and of Judge Bunn as to the invalidity of the patent.

2. To reject the construction of the patent by which Judge Brown has sustained it, and the limitations which he has held to be indispensable to it.

3. To disregard all the limitations in the art.

4. To reject the limitations expressed in the specifica-

tion and claim, and which were introduced as a condition precedent to obtaining the patent.

5. To ignore the testimony of complainant's witnesses as to the essential characteristics of the Gray machine.

6. To distinguish the patent from prior constructions by reason of trivial mechanical modifications, and then to interpret it, in order to reach the defendant, so as to cover a fundamentally different organization.

7. To treat the patent as resting essentially on elements not referred to in the sworn application as invented by the applicant.

This court has frequently emphasized and applied the rule that

> "In patents for combinations of mechanism, limitations and provisos imposed by the inventor, especially such as were introduced into the application after it had been persistently rejected, must be strictly construed, against the inventor, and in favor of the public, and looked upon as in the nature of disclaimers."
>
> *Sargent* v. *Hall Safe and Lock Co.*, 114 U. S., 63, 86.
>
> *Shepard* v. *Carrigan*, 116 U. S., 593.
>
> *Sutter* v. *Robinson*, 119 U. S., 530.

In the arguments for complainant in the lower court it has been urged that the location of the particular pivot was immaterial, that a lever of one order was an equivalent for a lever of another order, and a lever having an adjustable pivot at the center was an *equivalent* for one having the adjustable pivot at the lower end, and that spreading of the rolls by oscillating the shaft on which they were mounted answered the same purpose as if they were spread by means of a tie-rod provided for that purpose; and upon this reasoning it has been asserted that

the claims should have the same interpretation that they would if these limitations had not been introduced.

Now, it is obvious that if the claim had simply referred to a lever as one of its elements, the substitution of a lever of one order for a lever of another might not escape that claim; but where the claim had, in the first instance, referred to a lever or supporting-arm broadly, and had been rejected, and then *limited to a lever of a particular order*, or limited to the particular *location* of the adjustable pivot, and the *particular location* of each of the other elements specified, any decision that held that the order of lever was immaterial *for the purpose of that claim*, or that the relative location of the several pivots was immaterial, would simply *nullify* the restriction introduced by the Patent Office, and neutralize the decisions of the Supreme Court to the effect that such limitations cannot be disregarded, even though immaterial to the invention, and must be construed strongly against the patentee and in favor of the public.

This would be especially true were the court to interpret the claims to cover levers of the particular order, and having their several pivots located at the particular place, of the levers of the prior patents upon which Gray had been rejected, and which he was amending to avoid.

In *Sargent* v. *Hall Safe and Lock Co.*, 114 U. S., 63, the claim was limited to a revolving bolt as one of its elements. The defendant used a sliding-bolt. There would be no question but what, generally speaking, a revolving bolt would be the equivalent of a sliding-bolt, quite as much as a lever of one order would be the equivalent of a lever of another order, *where there were no restrictions to the order of lever*. But the Supreme Court hold that the limitation of the claim to a revolving bolt was *conclusive* upon the patentee.

In *Shepard* v. *Carrigan*, 116 U. S., 593, the same court says (p. 598):

> "If an applicant, in order to get his patent, accepts one with a narrower claim than that contained in his original application he is bound by it. If dissatisfied with the decision rejecting his application, he should pursue his remedy by appeal."

The same doctrine was very strictly applied in case of *McCormick* v. *Graham*, 129 U. S., 1, where the court was overruling a construction that had been put upon a patent by a large number of Circuit Court decisions, under which many injunctions had issued and many recoveries been had.

The expressions in the decision of the Coombs case implying that it is competent for the court to "*enlarge* the claim" in view of the prior art seem to disregard the fact the defendant is entitled to rely on the limitations expressed in the claim, and is not required to introduce evidence to show that the prior art was what the claim admits it to be. This court, in *Keystone Bridge Co.* v. *Phœnix Iron Co.*, 95 U. S., 274, says (p. 278):

> "Since the act of 1836, the patent laws require that an applicant for a patent shall not only, by a specification in writing, fully explain his invention, but that he 'shall particularly specify and point out the part, improvement, or combination which he claims as his own invention or discovery.' This provision was inserted in the law for the purpose of relieving the courts from the duty of ascertaining the exact invention of the patentee by inference and conjecture, derived from a laborious examination of previous inventions, and a comparison thereof with that claimed by him. This duty is now cast upon the Patent Office. There his claim is, or is supposed to be, examined, scrutinized, limited, and made to conform to what he is entitled to. If the Office refuses to allow him all he asks, he has an appeal. But the

courts have no right to enlarge a patent beyond the scope of its claim as allowed by the Patent Office, or the appellate tribunal to which contested applications are referred. When the terms of a claim in a patent are clear and distinct (as they always should be), the patentee, in a suit brought upon the patent, is bound by it. *Merrill* v. *Yeomans*, 94 U. S., 568. He can claim nothing beyond it. But the defendant may at all times, under proper pleadings, resort to prior use and the general history of the art to assail the validity of a patent or to restrain its construction. The door is then opened to the plaintiff to resort to the same kind of evidence in rebuttal; but he can never go beyond his claim. As patents are procured *ex parte*, the public is not bound by them, but the patentees are. And the latter cannot show that their invention is broader than the terms of their claim; or, if broader, they must be held to have surrendered the surplus to the public."

In *White* v. *Dunbar*, 119 U. S., 47, it says (p. 51);

"Some persons seem to suppose that a claim in a patent is like a nose of wax which may be turned and twisted in any direction, by merely referring to the specification, so as to make it include something more than, or something different from, what the words express. The context may, undoubtedly, be resorted to, and often is resorted to, for the purpose of better understanding the meaning of the claim; but not for the purpose of changing it, and making it different from what it is. The claim is a statutory requirement, prescribed for the very purpose of making the patentee define precisely what his invention is; and it is unjust to the public, as well as an evasion of the law, to construe it in a manner different from the plain import of its terms. This has been so often expressed in the opinions of this court that it is unnecessary to pursue the subject further."

See, in addition to the cases above quoted from:

Wicke v. *Ostrom*, 103 U. S., 461.

Brown v. *Davis*, 116 U. S., 237.

McCormick v. *Graham*, 129 U. S., 1.
Sargent v. *Burgess*, 129 U. S., 19.
Pattee Plow Co. v. *Kingman*, 129 U. S., 294.
Peters v. *Active Manfg. Co.*, 129 U. S., 530.
Peters v. *Hanson*, 129 U. S., 541.
Corbin Cabinet Lock Co. v. *Eagle Lock Co.*, Off. Gaz., Vol. 65, p. 1066.
Knapp v. *Morss*, Off. Gaz., Vol. 65, p. 1593.

The claims could hardly have been more precisely framed for the purpose of excluding defendant's construction, if they had been drawn with the knowledge that defendant's machines were as old as the Nemelka, and with the express purpose of avoiding them. If defendant's machines were found in all their details in the prior art, and the Nemelka were subsequent to the patent, the charge of infringement could be urged against the Nemelka with quite as much reason.

If a limitation introduced into the claims while an application is pending in the Patent Office is to be treated as of no force when the element without it would, in its absence, be the equivalent of the element with it, it can never have any force, since in all cases where they are not otherwise equivalents the alternative constructions are excluded without the limitation.

If such limitation has any effect, it must be to exclude from the scope of the claim what would otherwise be an equivalent of the element which it limits.

Where the statement of invention defines the invention as limited to specific means of making common adjustments, it is quite as important that manufacturers, dealers and users of machinery should be protected against disturbance in the use of whatever lies outside the claims of the patent, as it is that patentees should be protected in the use of what lies within those claims. The progress of

the industrial arts would be hampered and embarrassed by a construction of the law that made it possible for one who asserted no invention beyond such details to preempt all expedients for making adjustments of old tools to what was before recognized as their proper working position. The case is not like the creation of a fundamentally new machine, where the agents to be dealt with have no recognized name and may have to be designated by terms whose literalism can be avoided without departing from the substance of the invention.

Gray Prior Foreign Patents.

Prior to his application for the patent here in suit, the same patentee had taken out a patent for an Improvement in Roller Mills, in Germany, March 5, 1879, and in Austria, December 17, 1879. The Austrian patent was granted for one year, and was continued from year to year under the terms of the Austrian law, until December 17, 1884, when it expired. The German patent expired under the terms of the law under which it was granted, on March 5, 1885. This terminated the American Gray patent before this suit was begun.

As the Austrian patent was granted for one year only, it is only by showing extensions from year to year thereafter that the complainant can overcome the presumption that it expired at the end of the first year. It is affirmatively shown by the defendant (though this was probably unnecessary) that the patent was only continued in force by successive extensions up to the end of the fifth year (that is, December 17, 1884).

Unless the claims in controversy of the patent in suit are limited to the use of the tie-rod G as at once the means of spreading the rolls, restoring them to grinding

position, and adjusting them to different grinding distances, the patent must be treated as terminating with these earlier foreign patents. Both of them correspond more closely to the defendant's construction than does the Gray patent in suit. Each of them has an adjustable rod behind the rolls, bearing a coiled spring, and adjustable by means of hand-screws on the rod to regulate the pressure. In each case this construction is described as an essential part of the machine and is embraced in the claims. After describing the springs adjusted to regulate the pressure of the rolls, and eccentric cams to separate the rolls from each other without disturbing these springs, the Austrian patent claims, among other things (Rec., p. 309):

> "The combination substantially as herein described, of the cams (or wedge-screws) to separate the rollers from each other without disturbing the spiral springs."

These "cams" are eccentrics.

The spiral spring, the rod for supporting them, and the means for spreading and returning the rolls, are all necessary elements of this claim. There would be no operative organization if they were omitted. (Gray Austrian patent and extracts from Imperial Archives, Rec., p. 307–10.)

In the German patent, after specifically describing the spiral springs adjusted by the rods for giving pressure to the rolls, the means of adjusting them by hand-wheels, and the use of rods as the means of adjusting the normal distance between the rolls and of drawing back the rolls and returning them to grinding position; all of which are essential to the operation of the roller mill which he is patenting, he makes "the roller mill referred to in the description and drawings" one element in each of his claims, reciting specifically as other elements in the com-

bination, elements which lie outside of the roller mill proper, but are described as used in combination therewith. This is the usual method of framing claims in European countries to secure everything in the machine which evidence may show to be novel. (See German patent, Add. to Rec., p. 1, and stipulation, Rec., p. 23.)

Upon the expiration of either of these patents the unrestricted right to use what is embraced in them and necessary to the operation of the combinations claimed in them would accrue to the countries in which the patents were taken out. The object of the American statute, providing for the expiration of the American patent with the prior foreign patent, is to secure the unrestricted right to the invention in this country as early as it is obtained in the country to which it is first communicated by letters patent. The primary theory of the patent law was that letters patent were the means of communicating to the public inventions which might otherwise escape public attention; that they were the means of conferring the improvement upon the public; and that the patentee who disclosed his invention by a patent in any particular country in advance of the time when he disclosed it in other countries, had discriminated in favor of the country in which the first patent was taken out.

See *Siemens* v. *Sellers*, 123 U. S., 276.

It would appear, however, that Gray's intention was to limit his American patent to what distinguish it from that shown in either of his foreign patents. It is significant that, while in his foreign patents he refers to the adjustments of the springs to different tensions, he neither there nor in his application for his American patent suggests that there was any novelty in these adjustable springs or that his invention had any relation whatever to them. Whatever relates to them as elements of the in-

vention was introduced by his solicitors after his application had been rejected, and without supplemental oath from him.

The alternative is between treating the foreign patents as a limitation upon his American patent, or making (so far as the fourth claim is concerned) the consolidation into one rod of the spreading and spring-adjusting element, and the location of this combination above the roller-bearings so as to directly connect and tie together the fixed and the movable roller-bearings, the essence of the invention embraced in this claim. This construction would be conclusive against the complainant on the question of infringement, the other would be conclusive against it on the question of the continued force of his patent as well as upon the question of its validity when issued.

Substantially the question here presented was involved in the case of *Commercial Mfg. Co.* v. *Fairbank Co.*, 135 U. S., 176, where the American patent was held to have been terminated by the expiration of an Austrian patent which had been granted under the same statute as the Gray Austrian patent, for a shorter term than that for which it might have been granted under the Austrian law, and had, after being extended from term to term, expired at the end of the last period for which it was extended, which was less than half the term for which it might have been extended.

The last clause of the American statute is (Sec. 4887):

> "But every patent granted for an invention which has been previously patented in a foreign country shall be so limited as to expire at the same time with the foreign patent, or, if there be more than one, at the same time with the one having the shortest term, and in no case shall it be in force more than seventeen years."

The provisions of this statute were, in substance, borrowed from the English and other foreign laws, in which it was commonly provided that the domestic franchise should expire with the earlier foreign franchise obtained by or in behalf of the same patentee, the intention being to prevent a continuation of the monopoly at home after its expiration in any country in favor of which an inventor had discriminated by publishing the invention through an earlier patent.

When it is remembered that a patent is, in contemplation of law, a means of communicating to the people of the country in which it is taken out an invention which otherwise would not be known to them, the purpose and meaning of this statute are clear. The monopoly conferred by the grant of the patent is the incentive and the reward for introducing the invention through this official channel to the attention of the public. The man who took out a patent in England was considered as thereby placing the English public in possession of an invention of which it would otherwise remain ignorant. If he elected to confer that benefit upon a foreign community in advance of his own country, he was considered as thereby discriminating in favor of that foreign community. If a foreigner applied for a patent in England, he was obliged to do so through a resident; and if he had first obtained a patent abroad, his English patent was, by statutory provision, terminated by the expiration of the earliest foreign patent obtained before the issue of the English patent. Under the construction placed upon this law, the termination of the foreign patent, irrespective of whether it was due to the statutory limitation of term or to any default that caused it to expire within the term, had the effect of terminating the English patent. The English authorities constantly refer to the policy of the

law which limited the British franchise so as to expire with the earliest foreign franchise, as intended to prevent the patentee from enjoying a monopoly in England after the franchise had accrued to the benefit of the public abroad. This was carried so far that, where an extension of an English patent was applied for, and if it appeared that the foreign patent had been granted *after* the English patent but had been allowed to expire, it was held that the policy of the English law would forbid the extension of the English franchise beyond the term for which the foreign franchise had been continued in force. (See cases hereafter cited.)

It may be plausibly urged that the patentee who has not taken out any foreign franchise has thereby left foreign countries at liberty to use his invention without restriction, and that the patentee who has taken out a foreigh franchise, thereby for a certain period restricting foreign competition, should not be discriminated against. If this argument were sound, it would be pertinent rather as a ground for repealing the present statute than as a reason for refusing to enforce it according to its terms; but the answer to it is that in contemplation of law the patentee who patents his invention at home before patenting it elsewhere has given his country the benefit of its first publication, and has not discriminated in favor of foreign countries, while the patentee who has taken out a patent abroad in advance of the issue of his American patent has constructively conferred the benefit of his invention upon the foreign country in advance of his own country. It is for the interest of this country to have the term of the American patent begin to run at the earliest possible moment, both to give the American public the advantage of earlier knowledge than other countries, and

that the monopoly may not continue here after it has become public property in competing countries.

It is true that modern facilities for the exchange of commodities and of intelligence have largely superseded the conditions which made the issue of a patent in any particular country an actual discrimination in favor of that country; that in many instances the public, both at home and abroad, obtain their knowledge of an invention through other channels more speedily than they do through the issue of the patent; and that many of the considerations which led to the introduction of this statutory limitation (which is not peculiar to this country, but is common to most, if not all, European countries) have less force now than they had formerly; but this does not change the purpose or legal effect of the statute.

There are still many reasons for making it to the interest of the patentee to publish the American patent in advance of any foreign patent, and for insisting that he shall not continue to enjoy the monopoly here after the invention has become public property in the country where he elected to first patent it. Presumably the country in which he first patents it will be one whose relative position in the art makes it a leading competitor, while those in which no patents are taken will, for the same reason, never become formidable competitors in respect to it. This is illustrated by the fact that Gray selected for his first patent the country where roller mills were most manufactured, and for his second the country ranking next in this respect, while postponing the promulgation of the American patent until both these countries had enjoyed the benefit of these patents for many months.

Under the English patent law, any publication in England, whether through a foreign patent or otherwise, which communicated the invention to English subjects

was fatal to any subsequently procured English patent, though the English invention might antedate the publication; the theory of the grant being that it was a reward for actually conferring upon the English public, through the channel of a patent, an invention of which it had not before obtained knowledge through any source. In referring to this limitation in the English law (from which the provision of the American statute of 1870 was apparently borrowed), Sir J. T. Coleridge said that the policy of the act

> "is to prevent, in the case of inventions made and patented in any foreign country, the continuance of a monopoly in this country by virtue of any patent subsequently granted here beyond the time when the discovery shall have become public property in the foreign country."

See *Hill's Patent*, 1 Moo. P. C. C. (N. S.), 258.
Agnew on Patents, p. 191–2.

In referring to the same subject, Sir W. P. Wood, V. C., said:

> "Now, in looking at s. 25, one sees at once that the object was to prevent the subjects of this kingdom from being fettered in their right to compete with each other in the production and manufacture of different articles, when it was open to foreigners to enter into such competition without being fettered by any exclusive rights claimed by an inventor and patentee, or by the additional price which must be imposed upon the article in consequence of the patent right. The object, I say, is to prevent the English manufacturer from being fettered while the foreigner remains free."

See *Daw* v. *Eley*, L. R. 3 Eq., 510.
Normand's Patent, L. R. 1 P. C., 193.
Johnson's Patent, L. R. 4 P. C., 75.
Wiman's Patent, Ib., 94.

Blake's Patent, Ib., 535.

Agnew on Patents, p. 192.

Again, in Agnew on Patents, p. 192, Sir W. P. Wood, V. C., is quoted as having remarked in substance as follows in *Daw* v. *Eley*, in reply to the argument that it appeared very hard to prevent the English manufacturer from having the benefit of manufacturing that which all the rest of the world could manufacture, if no foreign patent had been taken out, and then to say if it is protected for a certain limited time abroad, then, and then only, when that protection has ceased, shall the English manufacturer become free.

> "This argument was raised in Blake's patent, where it was contended that there is not much difference between allowing a foreign patent to expire, and not taking out a foreign patent at all. The difference was there pointed out to be that where a patentee takes out a patent for his invention abroad, he is taking active measures to make the invention known in the country in which he takes out such patent; and the legislature has not said that no patent shall be granted in England for a foreign invention, unless the inventor shall have taken out a patent in some other country, and that if they had so provided, it would in effect be prohibiting altogether the grant of a patent for a foreign invention."

See Agnew on Patents, p. 193.

In re Betts' Patent, Lord Chelmsford, in a decision rendered in 1862, said:

> "Where a patent is taken out in a foreign country before a patent for the same invention in the United Kingdom, the latter patent is to terminate at the same time as the foreign patent. Where the term in the foreign patent has expired, any grant of letters patent in the United Kingdom made after that period is to be of no validity."

See 1 Moo. P. C. C., 59; also Higgins' Digest, p. 301.

In re Poole's Patent, in a decision in 1857, where it had been contended that a foreign patent, taken out after the English patent, should prevent the extension of the term of the English patent, Lord Romilly said:

> "Their Lordships are of opinion that this clause of the statute (Sect. 25) must apply to a case where a patent has been previously obtained in a foreign country. And it is obvious, from various considerations, that that must be the meaning of the clause, for, if not, an English-born subject who took out a patent in this country for an invention invented here, could not venture to take out a patent in a foreign country if the patent in the foreign country was of shorter duration than in this country, as, for instance, in Belgium, where the term appears to be ten years, as it would absolutely preclude his ever applying for continuation of the patent here, inasmuch as the patent for the same invention would previously have expired in the foreign country."
>
> See 4 Moo. P. C. C., N. S., 458; also Higgins' Digest, p. 302.

In re Normand's Patent, where the English patent was taken out first and a subsequent patent in France, which latter patent, at the date of the application for a prolongation of the English patent, had a year to run, it was held by the judicial committee that they could not recommend the Crown to extend the term upon the chance of the French patent being extended, and

> "That if the French patent had expired there was no power in the committee to recommend an extension of the English patent."
>
> 6 Moo. P. C. C., N. S., 477; Higgins' Digest, p. 302.

In re Winans' Patent, the English patent had been taken out before the French patent, and an application was made for an extension of the English patent. It was

held that, while the fact that the English patent was taken out first excluded the case from the statutory limitation, it was against the general policy to renew the English patent "*after the French patent had been allowed to expire.*"

8 Moo. P. C. C., N. S., 306; Higgins' Digest, p. 302.

In re Blake's Patent, the English patent was taken out before the French patent. Upon an application to extend the English patent, it was held that on the ground of public policy, as the French patent *had been allowed to expire*, they would not recommend an extension of the term.

9 Moo. P. C. C., N. S., 373; L. R., 4 P. C., 535.

"Sir Barnes Peacock, in delivering judgment, said: "'The word "such" in the proviso in the 25th section of the statute 15 and 16 Vict., c. 83, has already received a judicial construction, the word "such" being held to apply to a patent taken out in a foreign country before the grant of letters patent in *England*. (*In re Bett's Patent.*) Their Lordships, therefore, think the meaning is, that where a patent is taken out in a foreign country, before the grant of letters patent in *England*, and the foreign patent has expired, then that the patent in *England* should cease to be in force, and that where one "such" patent, or the old patent, has been obtained abroad, then the English patent shall be determined at the expiration of the earliest of the letters patent granted in a foreign country.' (L. R., 4 P. C., 537.)"

Higgins' Digest, 303, 304.

Under the Austrian patent law the expiration of a foreign patent for the same invention terminates the Austrian patent. (See 4 O. G., 208.) A similar provision is found in other European patent laws. In many countries the publication of a foreign pat-

ent bars any domestic patent. Under the French law, the French patent can not continue in force after the expiration of any previously obtained foreign patent. Neither there nor in England can the domestic patent continue in force after the previous foreign patent has been terminated, and it makes no difference that the foreign patent might have continued longer. It is plain that the proviso of the American statute is not an anomaly. It was enacted after the English decisions, which have before been recited, and plainly with the purpose of enforcing in this country the same policy that had been enforced abroad of terminating the monopoly here at the earliest date at which it was terminated in any country in which an earlier patent had been issued. The decision of this court in *Bate Refrigerating Co.* v. *Hammond*, 129 U. S., 151, in giving to the American patentee the benefit of any extended term which the foreign patent actually procures, has placed upon the American statute the most indulgent construction of which it is capable, and the stress laid in that decision upon the fact that the patentee *had availed himself of the provisions for continuing the foreign patent in force*, and upon the doctrine that the American patent "is to be in force *as long as the foreign patent is in force*," and that the American patentee could give evidence of extensions and thus "show the time *when, by virtue of such extension*, the United States patent will expire," would be altogether misleading if that decision was not to be understood as treating proof of a continuation of the foreign franchise beyond the term for which it was originally granted as necessary to prevent the lapse of the American patent at the expiration of the shorter term for which the foreign franchise purported to be granted.

Substantial reasons can be suggested why the term of

the American patent should be limited by the term for which the foreign patent was actually continued in force, irrespective of whether that was the term for which it was originally granted or a term for which it was subsequently extended under provisions of the foreign statute; plausible reasons may be suggested why the nominal term for which the foreign patent was actually issued should control, though these reasons may disregard the real purpose and intent of the statute; but neither substantial nor plausible reasons can be suggested why the American statute should have provided for the expiration of the American patent at the end of a term for which a foreign patent *might have been* granted.

If the American patent is to be taken as limited (as it was held in *Bate Refrigerating Co.* v. *Hammond* to be limited) to the term which the foreign patent is continued in force, the statute is given precisely the effect which the policy of the English law from which it was borrowed, and the tenor of the English decisions which preceded it, would indicate that it was intended to have. The statute is then logical and consistent with a well-defined and historic policy. Whether the reasons for it are approved or otherwise, they are at least intelligible. But certainly when Congress enacted that "every patent granted for an invention which has been previously patented in a foreign country shall be so limited as to expire at the same time with the foreign patent, or, if there be more than one, with the one having the shortest term," it did not intend to enact that the American patent should continue in force after the expiration of the foreign patent, *if* under the terms of the foreign law the patentee *might have procured or maintained* a patent for a longer term.

It would have been easy to find language to express such an intent if such had been the purpose, but it would

be difficult to conceive of any motive for such a provision. The statute was dealing with *actualities*, not with *might-have-beens*.

If the patentee could, at his option, have extended his patent in the country where he caused his first patent to issue, and thus given it a longer term, and has elected to let the invention become public property there, his case is certainly no more meritorious than if the arbitrary limitations of the foreign law imposed an insuperable barrier against any longer term. It may be said with much force that where he has availed himself of the provisions of a foreign statute to extend the patent from time to time, so that it has never actually lapsed, he occupies the same position in reference to the American franchise as he would if the original foreign grant had been for the full term for which it has been kept in force; but to hold that where he has elected, first, to cause his foreign patent to issue in advance of his American patent, and, second, to take that patent for a short term, and, third, not to renew that term but to allow the invention to become public property in the country to which it was first introduced by patent, he may still continue to enforce his monopoly against the American public to which it was last introduced, is to set at defiance both the terms and the spirit of the statute. It is practically to say that because the court does not approve such a statute it will studiously nullify it.

The statute is not a harsh one nor an unreasonable one. The avowed object of the patent law is to encourage inventors to introduce their inventions to the American public. While protection to inventors is incidental to that object, it is neither the sole nor the primary motive of patent laws. The benefit of the people of the United States is the controlling object of the enactments,

and any construction of them that disregards this and treats the inventor as the only object of consideration is fallacious. If inventors elect to first patent their inventions abroad, it is an extremely liberal policy which enables them, notwithstanding this discrimination against the United States, to procure and maintain a monopoly in this country that shall continue in force as long as their foreign monopoly is continued in force in the country upon which they have chosen to first confer the benefit of the patent. If the statute is considered objectionable, it is for the legislative rather than the judicial department of the government to modify or repeal it.

In *Commercial Mfg. Co.* v. *Fairbank*, the Austrian patent was granted under the same law as the Gray Austrian patent in this case, and the conditions of its expiration were identical. This court, which had recently several times considered and passed upon this statute, held distinctly that such expiration of the Austrian patent terminated the American patent. The opinion was prepared by the same justice who had shortly before prepared the opinion of this court in *Bate Refrigerating Co.* v. *Hammond*, 129 U. S., 151, and in *Pohl* v. *Anchor Brewing Co.*, 134 U. S., 381. The identity of the United States patent with the Austrian patent was only material in that case if, as a matter of law, the termination of the Austrian patent at the end of the seventh year was such an expiration as brought the case within the terms of this statute. The Austrian patent in that case, as in this, had been granted for a shorter term than under the Austrian patent law it might have been granted for. The conditions of extension were the same as in this case. If the question whether the expiration of the term for which the patent had been granted and extended was sufficient to bring the case within the American statute was not

elaborately discussed in that case, it would appear to be because either counsel or court, or both, considered that question too well determined to be open to discussion. The leading counsel for complainant in that case was also counsel in *Bate Refrigerating Co.* v. *Hammond*. That decision seemed so clearly to indicate that the provisions of a foreign law for continuing a patent in force beyond the term of its original grant only became available for the purpose of preventing the lapse of an American patent at the end of that nominal term where the extension had actually been obtained, that there seemed to be no room for further discussion.

That the Austrian patent, when actually extended, has the same effect in securing *in that country* a continuous franchise to the patentee as if originally granted *for the term to which it is extended* is not a matter of dispute. That is the effect of extensions of patents generally. Under the American law, which formerly authorized the extension of patents upon certain conditions, it was in terms provided that

> "thereupon the said patent shall have the same effect in law as though it had been originally granted for the term of twenty-one years."

This refers to its *effect upon the franchise held under it*, but it by no means followed that the indirect effect upon the rights of parties under contracts or licenses or other statutes might not be very different from what it would have been if the original grant had been for the term of twenty-one years. That the effect upon such rights was entirely different under the American statute has been repeatedly adjudicated by this court.

Bloomer v. *McQuewan*, 14 How., 539, 549.
Mitchell v. *Hawley*, 16 Wall., 544.
Ennson v. *Dodge*, 18 Wall., 414.
Paper-Bag Cases, 105 U. S., 766.

The extension of the Austrian franchise was not, under the Austrian law, a matter of unqualified right. There were many conditions under which it could not be extended. Failure to manufacture within the country within one year from the date would invalidate the franchise so that it could not be extended. Failure to continue manufacturing for two consecutive years thereafter would have the same effect. If the Minister of Commerce became satisfied that the franchise was "injurious to the public interests," it could not be extended. It could never be extended beyond the term when a foreign patent for the same invention had expired.

In the very case here under consideration, the German patent to Gray founded upon the same invention here in controversy had expired within the meaning of the Austrian law, if not within the meaning of the American law, March 5th, 1885, and would have been a bar to the extension of the Austrian patent. (German Patent, Addition to Rec., p. 1; Stipulation, Rec., p. 23; Amendment to Answer, Rec., p. 24.)

The controlling fact, however, is that whatever the rights of Gray might have been, in respect to procuring a longer term or obtaining an extension of his patent, he *did not avail himself of that right*, and the term for which his patent was granted and the term for which it was extended have both expired. Conceding that it is immaterial whether that additional term be acquired at the date of the original grant or by subsequent extension, the fact remains that in this case *it was never acquired* at any time or in any way.

The explicit provision, consistent with the policy of other countries from which the provision was borrowed, is that the American patent "shall expire at the same time with the foreign patent, or, if there be more

than one, at the same time with the one having the shortest term," apparently taking every precaution to insure that the American patent should not continue in force beyond the foreign patent which first expired.

It has sometimes been argued that the provisions of this statute could apply only to a case where the foreign patent was granted before the American was applied for, but the language of the statute, as well as the obvious intent of it, excludes such a construction. The statute provides:

> "No person shall be debarred from receiving a patent for his invention or discovery, nor shall any patent be declared invalid, by reason of its having been *first patented* or *caused to be patented* in a foreign country, unless the same has been *introduced into public use* in the United States *for more than two years prior to the application*. But every patent *granted* for an invention which has been *previously patented* in a foreign country shall be so limited," etc.

Throughout, in defining the relation of the foreign patent to the American, the reference is to the comparative date at which the thing is *patented*, not to the comparative date of applying for the patent. This is made still plainer by the fact that the same section of the statute, when referring to the term of public use, *limits it carefully by the date of application* for patent, in sharp antithesis to the clause which makes "its having been *previously patented in a foreign country*," the condition of the limitation of the term provided for in this section. It is the date when it is first *patented* which determines whether the foreign country or the United States is given the precedence.

If the date of application were to be taken as the test, rather than the date of patenting, the case would be no

more favorable to complainant, for the foreign patent was applied for as well as issued in advance of the American. The Austrian patent was applied for, and the German patent issued, many months in advance of the American application. The applicant has absolute control of the order in which his patent shall be issued in the several countries. In this country the date of payment of the final fee determines the date of issue. It is a matter which he can regulate to suit himself. If, therefore, the patent abroad goes into effect in advance of the issue of his patent here, he has exercised his election, and has nobody to blame but himself for having his American franchise thereby limited according to the terms of the statute under which he obtains that franchise.

The purpose of the statute obviously has reference to the priority of the promulgation of the patent, rather than to priority in lodging the application in the secret archives.

It has been suggested, though it may not be seriously argued, that the American statute in controversy was only intended to apply to foreigners, but the terms of the statute and the history of patent legislation in this country alike exclude any such hypothesis, while there can be no reason for dealing less favorably with an American who first patents his invention abroad than with a foreigner who first patents in his own country. Of the two, the American who discriminated in favor of a foreign country would seem to be the less entitled to indulgence.

Any consideration of the patent law which disregards the fact that it is enacted for the benefit of the public who are to receive the advantage of the invention, is misleading. It is designed to induce inventors to put the American public in possession of their inventions

at the earliest possible moment, and to secure to the American people at large all possible benefits from the invention. It is designed to prevent any discrimination that would give foreign countries advantages in such inventions over our own country.

Some of our earlier statutes discriminated against patents taken out here in behalf of foreigners, but it seems to have been soon realized that it was the policy of the American law to afford every inducement to foreigners to patent their inventions here that was afforded to American inventors.

The act of 1793 gave the right to obtain patents to "citizens of the United States." (Sec. 1, Act of 1793.)

In 1800 an act was passed to extend the same rights to "all aliens who at the time of petitioning in the manner prescribed by the said act shall have resided for two years within the United States." It was further provided that if the invention had "been known or used either in this or any foreign country" at the time of the application for the American patent, no American patent should be granted, or if granted, would be void. (Sec. 1, Act of 1800.)

In 1832, the same rights were extended to "every alien who, at the time of petitioning for a patent, shall be a resident of the United States, and shall have declared his intention, according to law, to become a citizen thereof," it being further provided that the patent should be invalid if the patentee failed for one year from the issue thereof to introduce the invention into public use, or if at any time thereafter it failed to continue in public use for any period of six months. (See Act of July 13, 1832.)

The Act of 1836 abolished the distinction between citizens and foreigners, and extended the right to obtain pat-

ent to "any person or persons." (See Act of July 4, 1836, Sec. 6.)

The term used in the Act of 1870 (Sec. 4886, Rev. Stat.) to define who are competent to obtain patents, is the same as that used in the section here in controversy to prescribe the limitation. It is "person" in each case, not "resident" or "citizen." The two sections are consecutive, and there is no more reason to suppose that it was intended to limit section 4887 to citizens or residents than that it was intended to so limit section 4886. The language is in itself incapable of a construction that would make such a distinction, and the context excludes it.

The entire subject-matter now sought to be covered by the American patent was communicated to the German public by the German patent, and to the Austrian public by the Austrian patent. It has become public property there, not by the forfeiture of any franchise once secured, but by the expiration of the term for which the franchises were secured. Its unrestricted use in that country is not even embarrassed or deterred by any nominal continuation of the patent.

Whether the court approves or disapproves of the policy expressed in this statute, is not the question. Its intent is plain, especially so when the English decisions preceding its enactment are considered. This court has been extremely indulgent toward patentees in so construing the statute as to give them the benefit of extensions actually procured. It is now asked, in behalf of a patentee who chose to go to Germany or Austria for his first patent, to reject the very logic by which it has gone thus far, and to abrogate the safeguards which the law has provided for the American public.

If a statute is equally capable of two constructions, one consistent with an obvious public policy, and the other

inconsistent, doubts may be solved in favor of the former, but disapproval of a statute affords no warrant for throttling it by a construction that at once disregards its terms and defeats its purpose.

Gray Patent No. 238,677. (March 8, 1881.)

Subject of Controversy.

The statement of invention in this patent is as follows:

> "My invention consists in the combination of two rolls arranged to turn at different speeds toward each other, and provided with spiral ribs or teeth of peculiar form of construction, all running in one and the same direction around the rolls.
>
> "The invention also consists in various details of minor importance hereinafter described."

It is to the "*details of minor importance*" that this controversy relates. The defendant is not charged with infringing any claims relating to the differential speed of the rolls or spiral ribs. The only claims upon which complainant's expert undertakes to make a charge of infringement are the second and third. He claims to find an infringement of the second in the Barnard & Leas machine No. 2, which has been referred to in connection with the preceding patent, while the charge of infringement of the third claim is confined to a different Barnard & Leas machine, represented in evidence as "Complainant's Exhibit Drawings of Defendant's Machine."

Both these claims relate to trivial and obvious additions to the Gray machine, intended to impart to it the capacity of simultaneous adjustment of both ends of the rolls which was common to the older machines, and to connect the

shaft which shifted one roll with that which shifted a similar roll.

The defendant denies the novelty and patentability of the invention, and also denies infringement, and insists that in respect to the adjustments here referred to it has adhered strictly to the older types of machines.

Want of Novelty.

The earliest date Gray undertakes to fix for this invention is August 9, 1879. (Dep. Gray, Rec., p. 86, A. 65.) The subject of the claims in controversy is, first, the insertion of a shaft connecting the device which operates on the inner end of the tie-rod G (the same tie-rod included in the prior Gray patent) at one side of the machine to spread the rolls, with the similar device which operates on the tie-rod G at the other end of the roll, so as to impart to the two tie rods simultaneous longitudinal movement in spreading the rolls and restoring them; and, second, the insertion of a rod to connect the shafting which imparts longitudinal movement to the spreading rods G, in one pair of rolls, with the shaft, which imparts the longitudinal movement to these rods in a duplicate mill. It will be remembered that the prior Gray patent has no provision for throwing the rolls apart or restoring them to position by the simultaneous movement of both ends of the roll. The spreading could only be done by first moving the rod at one end and then moving the rod at the other end, destroying the parallelism. It was in this respect deficient in what was common to nearly all the older machines, which were generally provided with through-shafts that imparted the same spread to each end of the roll by the operation of a single hand-lever.

If either of the claims were to be restricted to the combination of elements by which Gray effects his result,

there would be no approach to infringement, and the complainant has, therefore, been obliged to treat the patent as not dependent upon the combination of the through-shaft with the rods G, but entitled to a broader construction than Gray would have been entitled to claim if he had been the first to apply a through-shaft bearing eccentrics at each end to simultaneously spread and restore the rolls. The breadth of construction which the complainant is obliged to contend for is illustrated by the fact that the defendant's mill, charged to infringe the second claim, uses for spreading and restoring each pair of rolls the identical means employed in the Nemelka and Lake patents for the same purpose.

In order to understand distinctly the scope of the alleged invention made by Gray, it must be remembered that in this patent he made no change in the springs or the tie-rods G, or the mode of adjusting the springs, or the mode of adjusting the grinding distances of the rolls. All these remain just as in his former patent. The only modifications, so far as the claims in controversy are concerned, were in the provision of a shaft at the front end of the tie-rods of each pair of rolls to impart simultaneous longitudinal movement to those tie-rods, and in connecting the shaft provided for this purpose in one set of rolls with a shaft provided for the same purpose in another set of rolls, so that the outer roll of each pair would be thrown apart or returned at the same time.

In the Daverio patent of January 25, 1878, the entire combinations of both the second and third claims are found, unless those claims are limited to the utilization of the spring-carrying rods as a means of spreading the rolls, in which case defendant's mills do not infringe. (See also Daverio German patent of July 24, 1877, Rec., p. 277).

In the Daverio Italian Patent of Addition of March 15, 1878 (Rec., p. 298), there is, in combination with the swinging roller supports and the rods on which are mounted the adjustable coiled springs connected therewith, a through-shaft having eccentrics on each end, and a hand-lever to turn that shaft, so that the operation of the hand-lever rotates the shaft and simultaneously spreads the rolls at each end.

A through-shaft with an eccentric at each end was also shown in *Dingler's Polytechnic Journal* of 1856-'57 as a means of spreading and returning the rolls by the simultaneous movement imparted to both ends of the movable roller hung in swinging bearings. (See Rec., p. 270).

The Nemelka patents heretofore referred to employed through-shafts with eccentrics on both ends operating to space and return the rolls simultaneously in the precise manner of defendant's machine charged to infringe the second claim.

The Mechwart mechine, patented in this country as No. 251,124, but patented in Austria March 19, 1876, and illustrated in *Die Muehle* of 1875 (Rec., p. 273), Pappenheim of 1878 (Rec., p. 275), and Kick's *Die Mehl-Fabrikation* of 1878, in evidence (see Fig. 5 of plate XIV), has a through-shaft connected with both pairs of rolls, with a hand-lever on this through-shaft, so that by its rotation both pairs of rolls are spaced simultaneously, and both ends of the rolls are moved simultaneously.

In the "*Scientific American Supplement*" for 1876, page 617, Fig. 11, (Rec. p. 311) there is shown a double-roller mill in which the spring pressure on each pair is thrown out of gear by the manipulation of a single cam. The same machine is illustrated more distinctly in Fig. 6 of plate XIV, of Kick's book above referred to.

The two pairs of rolls constitute in effect two mills, and the connection of the shaft which moves one pair of rolls with the shaft which moves the other pair is only an ordinary expedient for applying the same power to move several mills at the same time where the same power has commonly been applied to move one mill for the same purpose.

What Gray did, therefore, was simply to employ the usual mechanical expedient for transmitting the same power to the two rods G, when the same expedient had been common in roller mills for the purpose of transmitting the same power to space and return the movable boxes at both ends of the rolls, and then to use a common mechanical expedient for connecting the two shafts which he introduced for the purpose of moving these two tie-rods. Neither of these were novel in their application to roller mills. It is submitted that in view of the state of the art as heretofore illustrated there was no patentable invention. See authorities heretofore cited, particularly *Aron v. Manhattan Ry*, 132 U. S., 84; see also the very recent decision of this court in *Belding Mfg. Co.* v. *Challenge Corn Planter Co.*, Off. Gaz., Vol. 67, p. 141; also dep. See (Rec., p. 200–5, A. 17–19).

No Infringement. Second Claim.

The charge of infringement under this claim is made only against the Barnard & Leas machine No. 2, the same machine charged with infringing the prior Gray patent.

The portion of the specification referring to the combinations recited in the second and third claims (which are predicated upon the same elements, except that the third omits the connecting rod K), is as follows:

> "The rolls B are each mounted in fixed bearings on the frame, and the rolls C each sustained in the

upper ends of arms E, which swing on pivots F at their lower ends. Each arm is drawn inward to force the roll against its companion by means of a rod G, provided with a spring and adjusting-nuts, in the same manner as in the patent granted to me December 23, 1879. The rods G have their inner ends mounted on eccentrics *H*, which are carried by transverse shafts I, mounted on the frame; and the ends of the two shafts are provided with crank-arms J, and connected by a rod, K, pivoted to said arms, as shown in Figs. 4 and 5. By moving the rod K, which may be done from either side of the machine, all the eccentrics are operated simultaneously and the movable rolls thrown instantly into or out of an operative position, and this without destroying the adjustment of the parts which control the exact position of the rolls when they are in action."

The only addition to the former Gray patent represented in the combinations here referred to consists in connecting by a shaft the eccentrics which impart longitudinal movement to the rods G of the earlier patent, so that both rods are operated simultaneously, and then connecting the shaft applied for this purpose to the tie-rods of one mill, and the shaft applied for the same purpose to the tie-rods of a duplicate mill, so as to communicate the same movement to both mills.

The patentee was not the first to apply a through-shaft with eccentrics on each end to spread and return the swinging levers at both ends of the rolls simultaneously, nor was he the first to connect this through-shaft, which moved both ends of the rolls simultaneously, with the two outer rolls, so as to spread both pairs at once. All this was familiar in the same art.

The first element of the second claim is "the swinging roll-supports E," which, as described in the specification, "swing upon pivots F at their lower ends."

The second element is "the rods G," whose office in the

combination is thus stated in the specification: "Each arm is *drawn inward* to force the roll against its companion by means of a rod G." This inward movement is described as effected by the eccentrics operating on the inner end of the rod and is the movement by which the rolls are returned to working position, as distinguished from that by which they are set to different distances. The combination here referred to has no agency in setting or adjusting the rolls, but is simply a means of *spreading* and *returning* them.

The third element is the "eccentrics H," whose combination with the other elements is thus described: "the *rods G* have their *inner ends mounted on eccentrics* H."

The fourth element is the "shafts I," two shafts applied to the *eccentrics on which the inner ends of the rods are mounted* and whose sole office is to transmit from one of these eccentrics to the other the propulsion by *which the* rods G *are caused to draw the rolls to and from working position.*

The fifth element is the "rod K" which connects the shaft I in one mill with the same shaft in a duplicate mill.

The office of the entire combination is, as already indicated, to throw the rolls in and out of working position.

A glance at defendant's machine (Barnard & Leas machine No. 2) shows its radical difference in construction in respect to the means of spreading and returning the rolls.

Instead of the first element recited in the claim, defendant's machine, following Nemelka, *mounts its swinging arms on a rotating eccentric pivot which serves at once to support and to spread and return the rolls.* It has also, as in the Nemelka machine, an adjustable spring pressure *applied below the roller-bearings.*

It has no element which corresponds in any respect to

the rod G of this combination. The spring-bearing rods which complainant's expert endeavors to treat as equivalents *have no agency in spreading and returning the rolls and cannot be moved longitudinally in either direction for this purpose.* They are themselves tilted back and forth by the levers when the levers are oscillated by rocking the shaft on which they are mounted.

There are *no eccentrics, or equivalent devices, applied to the inner end of the rods which complainant's expert has called "defendant's rods G."* There are *no shafts corresponding to the shafts* I, and no occasion for them.

As these shafts are wanting in defendant's machine, *there can be no connecting link between such shafts,* and that element is also wanting.

Instead of Gray's cumbrous and circuitous mechanism for spreading the rolls, defendant uses the simple and efficient method of Nemelka, the *direct rotation of the eccentric pivot on which the levers are mounted.*

Gray employs *five* elements for the purpose of spreading and returning one pair of rolls, namely, two rods G (one at each end of the roll), two eccentrics engaging with the inner end of these rods and imparting longitudinal movement to them, and a shaft extending from the inner end of one rod to the inner end of the other and required solely for the purpose of operating these rods G.

The defendant dispenses with all of these elements, and makes the shaft, on which the swinging supports for the rolls pivot, the sole agency for spreading and returning them.

While this Gray patent is a confession of the crudeness of the former Gray patent as compared with Nemelka, it represents only a clumsy and complex substitute for Nemelka's simple and efficient spreading device.

The only additions defendant has made to Nemelka's

machine, so far as the spreading of the rolls is concerned, is to connect the pivot on which one set of rolls is mounted with that on which a duplicate set is mounted by an ordinary pitman, so that the movement of the pivoted shaft of one is imparted to the pivoted shaft of the other. If Gray had done this, he could not have had a patent for it. It would not have been patentable as the art then stood. Not only was it old to spread two pairs of rolls simultaneously by power from one through-shaft, but it was a common expedient in mechanics to thus transmit uniform movement to two or more duplicate machines from a single shaft. Precisely the defendant's construction is shown in Appleton's Dictionary of Mechanics for operating simultaneously pivots of the two outside rolls of a set of three, and thereby throwing the rolls apart at both sides by a single movement of the hand-lever.

(Addition to Rec., p. 3, and drawing opposite p. 4.)

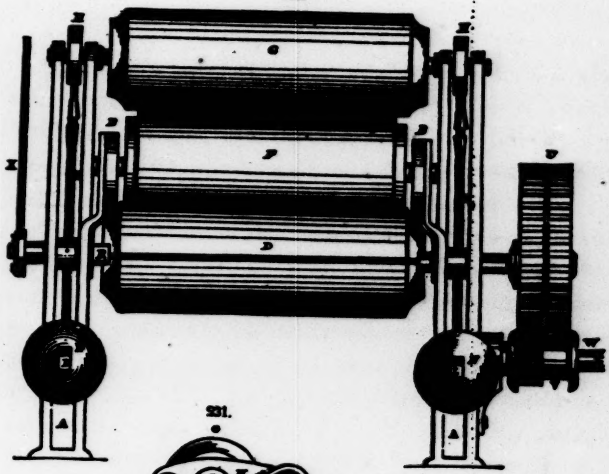
The mere transition of the same power to duplicate parts in duplicate mechanism, by means of a pitman connection, involved no more invention than driving two planing mills by power from the same shafting, or hitching two horses to one post. It lies far outside of the limits which the Supreme Court has drawn between patentable invention and the adoption of familiar mechanical expedients.

But Gray did not patent the combination which the defendant uses. If he had ever thought of it, he would have saved much labor and expense in multiplying parts, and would have had a much better machine.

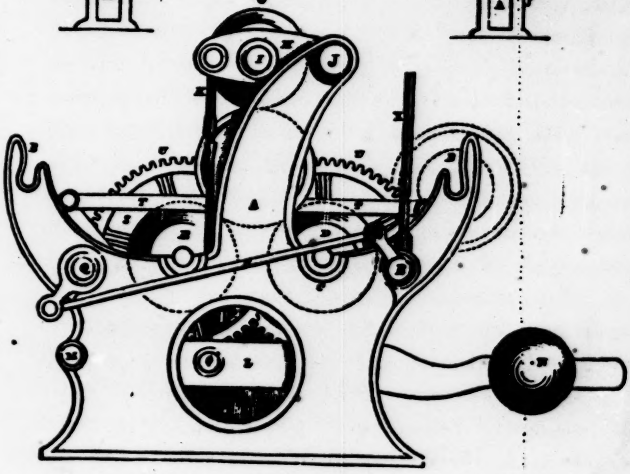
The rule that a combination claim is not infringed unless each element is employed and combined with the other elements substantially as in the patent, is too familiar to require the citation of authority. A defendant who uses one element to do the work for which the pat-

Cut from Appleton's Dictionary of Mechanics, 1852.

230.



231.



entee employs five does not infringe a claim which recites the five elements with which he has dispensed.

NO INFRINGEMENT. THIRD CLAIM.

The charge of infringement under this claim is confined to the machine in evidence as "Complainant's Exhibit Drawings of Defendant's Machine," a different machine from that which has been charged with infringement under the claims heretofore considered.

The only feature which it has in common with the Gray patent is that which the Gray patent has in common with prior patents, namely, a through-shaft carrying eccentrics by which the power which spreads and returns the movable roll is communicated to both ends simultaneously. The provision for conveying the power from one pair of rolls to the other, referred to in the preceding claim, is not an element in this claim. The only pretense at invention, so far as this claim is concerned, rests upon the insertion of the through-shaft I, to connect the two eccentrics by which the rods G of the former Gray patent were thrown apart and drawn together. This was borrowed from the older machines, and if it were invention at all (which the defendant denies) the invention consisted, *not in the provision of a through-shaft for the purpose of spreading the rolls* (which was common to most of the older machines), *but in the application of that through-shaft to the spring-carrying rods by which the swinging levers of the earlier Gray patent were rocked to and fro.* It is true that the shaft, when applied to connect these eccentrics on the opposite side of the machine, was only doing what similar through-shafts had done in prior roller mills for the same purpose; but if the claim is to be sustained at all, it has to be sustained upon the theory that the invention consisted in applying to the spring-carrying

rods which moved these swinging levers in the earlier Gray patent the same means of imparting uniformity of propulsion as had been before applied to simultaneously draw together and throw apart the two ends of the movable rolls in other mills; and if the patent is sustained for this, it cannot be interpreted, for the purpose of covering other constructions of machines, so as to relieve it from the limitation to the special organization to which it was applied.

But this contraction, to save it, and subsequent expansion to dominate other organizations, is precisely what the complainant contends for. It relies upon the most trivial mechanical differences in construction between the Gray machine and the machines to which the through-shaft, carrying eccentrics at both ends, had been applied for the purpose of spreading and returning the rolls, to protect the combination recited in this claim from anticipation, while at the same time urging that the application of such a through-shaft to an entirely different organization must be treated as an infringement, providing it moves the two ends of the rolls simultaneously.

Instead of "the movable roll-supports E," which the patent had described as *swinging levers*

> "drawn inward to force the roll against its companion by means of a rod G, provided with spring and adjusting nuts in the same manner as in the patent granted me December 23, 1889,"

the defendant uses *sliding* roller-boxes, which his Honor Judge Brown held, in the Smith case, were not in view of the limitations of the art at the date of the earlier Gray patent, an equivalent for the swinging levers.

Instead of the spring-carrying "rods G," which are the rods described in the last quotation, the defendant applies the eccentrics directly to an extension of the

boxes which slides to and fro, without any intervention of "rods G" as a spreading agent. The rods of defendant's machine correspond rather with those of the Daverio patent of January 25, 1878 (Rec., p. 294), and are moved to and fro in the same way as in that patent and for the same purpose.

Instead of employing a separate shaft for each pair of rolls, as does Gray, the defendant adopts the Daverio plan of connecting the rods of both movable rolls with the same eccentrics, so that one shaft does what in the Gray construction required two, and so that no connecting link K is required to transmit the motion of one outside roll to the other outside roll.

The complainant is in this case insisting that the connection of the rods G from both sides of the machine with the same through-shaft is a distinct invention from the use of one shaft for each pair, and asking the court to sustain a later patent for this as a different combination. While it may be evident that the connection of the rods with one shaft instead of two, so that the movement of that shaft necessarily imparted motion to the four rods, was not patentable invention, it is equally clear that the connection of two eccentrics with one shaft was not, in view of the prior art, patentable invention; but it is sufficient for the purpose of this issue that the defendant has employed an older construction than Gray's, instead of adopting the Gray construction.

It is significant in this connection that the complainant is contending, in respect to the second claim of this patent, that the combination for spreading the rolls used by Nemelka (which is the same as that used in the second Barnard & Leas machine) is the equivalent of the combination used for that purpose in the Gray patent, and is relying upon the addition of the rod K as the

sole invention to save that claim. Now the third claim of the patent embraces all the elements of the second, except the rod K, which it confessedly does not include, and if complainant's contention as to the second claim were correct, it would follow that the third was completely anticipated by Nemelka.

But Daverio in his Italian patents, that of January 25, 1878 (Rec., p. 294), and that of March 15, 1878 (Rec., p. 298), and in his German patent of July 24, 1877 (Rec., p. 277), exhibits the exact combination used by defendant for the purpose of spreading simultaneously both ends of the roll, and also for the purpose of spreading simultaneously both outside rolls at the same time.

This provision for spreading the rolls is thus described in the Daverio Italian patent of January 25, 1878, in which the rods for spreading the rolls were utilized for the purpose of lubricating them. (See Rec., p. 296.)

> "The bearings K of this mill are of cast-iron with small bushings of suitable composition. The two lower bearings, in which turns the shaft bearing the driving pulley, are fixed to the frame of the machine, while the four upper bearings are jointed to it by bolts *o*, so that the cylinders can be displaced vertically. This displacement is effected by the following arrangement: *p*, *p*[1] are gas-pipes, establishing a communication between the bearings for lubricating them; they are screwed into the bearings of the cylinders D and F, but not in those of the cylinder E. *l* is a lever whose axis is provided at each end with a double cam *i* acting on two small levers *k*, which are in connection with the collars on the said gas-pipes, in such manner that if we turn the lever *l* the cams separate the ends of the levers *k*, and consequently the bearings of all the cylinders.
>
> "This arrangement is used when it is desired to stop the machine to prevent the material still falling from the hopper from accumulating in front of the cylinders in such a manner as to cause difficulty in

starting. The screws at the ends of the lever *k* allow the exact adjustment of the cylinders as is necessary for different kinds of grinding. A single oil cup at each end is sufficient, as there is very little friction in the bearings."

The defendant was building Daverio vertical rolls before it adopted the machine here in controversy. (Dep. Putman, Rec., p. 100, A. 13.) When it first changed from the vertical to the horizontal machine, it used for the purpose of spreading the rolls the Daverio devices, simply applying them to the outside rolls of the horizontal mill instead of to the outside rolls of the vertical mill, and this is the offense for which infringement is charged under this claim.

The defendant soon abandoned this construction for the simpler and more convenient construction of the Nemelka patent, which dispenses with any additional through-shaft for the purpose of spacing the rolls, and with the link-mechanism provided to operate the through-shaft; and the charge of infringement is not made under this claim against the machine which it has built, since these first few were made with the Daverio plan of spreading the rolls.

While the defendant's construction follows the Daverio in respect to the combination in controversy, it at the same time approaches much nearer to other old machines than it does to Gray. In the Mechwart machine one through-shaft was used to throw apart and return the outside rolls of both pairs with a simultaneous movement of each end of the roll. The same is true of the roller mill described in *Dingler's Polytechnic Journal* of 1857 (Rec., p. 270.) Such a construction is shown and described in Kick's work on milling of 1878, *Die Mehl-Fabrikation* (Rec., p. 275). The sole claim of invention

on the part of Gray consists in having applied to the peculiar construction of machine embraced in his earlier patent the same means of imparting simultaneous movement to the eccentrics at both sides of the machine as had been commonly employed for that purpose in older machines, and if the application of such a device to that particular mill were patentable, the defendant has not made that application. It has only used in a different mill a through-shaft which had before been used in roller mills for the same purpose and in the same way as in its machine.

Concerning the question of infringement under this claim, defendant's witness See testifies (see Rec., p. 214, A. 31):

> "A. In answer to question No. 17, regarding Gray's patent No. 238,677, I called attention to the fact that 'in the translations from *Dingler's Polytechnic Journal*' both ends of a roll are opened by the rotation of a shaft carrying an eccentric at each end, one for each roll journal, the roll-boxes being sliding-boxes; and I also pointed out a large number of exhibits showing the employment of a cross-shaft with a cam or eccentric at each end to serve in opening, at once, both ends of the movable roll. In the Dingler case referred to, rods or transverse shafts reached from the eccentrics toward the movable roll-boxes, and the connection between these rods and boxes was made through interposed springs, whereby the roll was held, by the eccentric, to its work, with an elastic pressure, and whereby the roll could yield for the passage of extra hard substances, or be opened by turning the eccentric shaft.
>
> "In defendant's machine No. 1, the movable rolls are mounted in sliding-boxes, such boxes consisting of a sliding base on which the box proper is mounted to slide and held to its work by elastic pressure. A shaft is arranged across the machine and provided at each end with a volute cam-slot. Rods reach from these cam-slots to the sliding bases of the movable

bearings. The rods form unyielding bars and prevent any displacement of the sliding base of the journal box. In emergencies the elastically-mounted upper portion of the journal box yields upon the base, the rods holding the base unyieldingly.

"In the Gray patent there are transverse rods connecting at their inner ends with eccentrics on a cross-shaft, and connecting at their outer ends with the pivoted roll-boxes through the medium of springs and spring-adjusting devices. The tension of the springs is adjusted by manipulations at one end of the rod, while the opening of the roll is effected by manipulations at the other end of the rods. The Gray patent relates primarily to the dress of the rolls, the only recitation in the preamble bearing on the features now under consideration being 'the invention also consists in various details of minor importance, hereinafter described.'

"I do not find in defendant's machine No. 1 the combination of the third claim of the Gray patent, the details in the two structures differing materially in form, arrangement and mode of operation. In Gray's machine the rods G connect at their outer ends with the roller-bearings through the medium of springs and adjusting nuts on the rods, and when the movable roll opens to permit the passage of extra hard matter, the journal-boxes shift their position upon the rods and return again after the passage. In defendant's machine the rods are unyieldingly attached to sliding bases incapable of changing their position on the rods when the roll opens in an emergency.

"In the Gray patent also there are two of the eccentric shafts connected by a horizontal rod, prolonged to form push-handles, for rotating the two eccentric shafts, in the absence of which handle-rod no provision is mentioned for turning the eccentric shafts.

"In defendant's machine a pivoted hand-lever is mounted on the machine and connected with the eccentric shaft, to serve as a means for rotating it. The horizontal handle-rod of the Gray patent is therefore absent from defendant's machine."

Upon the limiting effect of specific designations of elements in combination claims and the restriction of such claims to the organization shown, including all the elements necessary to its operation, see

Fay v. *Cordesman*, 109 U. S., 408.
Weir v. *Morden*, 125 U. S., 98.
Hendy v. *Golden State and Miners' Iron Works*, 127 U. S., 370.
McCormick v. Graham, 129 U. S., 1.
Corbin Cabinet Lock Co. v. *Eagle Lock Co.*, Off. Gaz., Vol. 65, p. 1066.
Knapp v. *Morss*, Off. Gaz., Vol. 65, p. 1593.

Odell Reissue No. 10,139. (June 20, 1882. Original, December 13, 1881.)

SUBJECT OF CONTROVERSY.

Only the second claim of this patent is charged to be infringed, and the charge of infringement under that claim is confined to one of the defendant's machines—that shown in evidence by "Complainant's Exhibit Drawing of Defendant's Machine."

This second claim was introduced by reissue, and it is contended by the defendant that the reissue in respect to this claim is invalid. There can be no question but what it was an expansion of the original patent. It is invalid under the decisions of this court in

Mahn v. *Harwood*, 112 U. S., 354.
Coon v. *Wilson*, 113 U. S., 268.
Ives v. *Sargent*, 119 U. S., 652.
Parker & Whipple Co. v. *Yale Clock Co.*, 123 U. S., 87.

Matthews v. *Ironclad Mfg. Co.*, 124 U. S., 347.
Hoskin v. *Fisher*, 125 U. S., 217.
Flower v. *Detroit*, 127 U. S., 563.
Yale Lock Co. v. *Berkshire Bank*, 135 U. S., 342.
Electric Gas Co. v. *Boston Electric Co.*, 139 U. S., 481.
Freeman v. *Asmus*, 145 U. S., 226.
Huber v. *Nelson Mfg. Co.*, 148 U. S., 270.

The only departure made by Odell from the machine of Gray as exhibited in the last patent under consideration (so far as the combination recited in the second claim is concerned) was in connecting the tie-rods G of the Gray patent, of two pair of rolls with the same through-shaft. Defendant insists that this did not involve invention, even if it had not been common in older mills; that it is completely and literally anticipated unless the claim be limited to the application of this through-shaft to the spring-carrying tie-rods connected with swinging lever bearings in the same manner as in the Gray patent and in the Odell patent; that when so limited it is invalid for want of patentable invention; and that it is not infringed.

In *Odell* v. *Stout*, 22 Fed. Rep., 159, the court treated the application of the through-shaft to the spring-carrying rods which operated the swinging levers as the essential feature of invention, and only sustained the patent by reason of this distinction between it and prior constructions. It had not before it the defenses upon which defendant principally relies in this case, and assumed that the method of applying the elastic pressure was a material part of the invention embraced in this claim.

In reaching this conclusion it also fell into error as to what was contained in the Mechwart patent, to which it referred as the only approach to the Odell combination in the prior art before it.

The complainant has so fully recognized the fact that if this court adopts the construction placed upon this claim in Odell against Stout, as a means of sustaining it, it must find non-infringement, that it has by its expert testimony rejected that construction of the claim and insists that the one element upon which the court in that case rested its novelty is not included in the combination of this claim, namely, the spring. (See dep. Smith., Rec., p. 146, A. 7.)

Defendant insists that the patent is invalid for want of novelty, irrespective of whether the spring is or is not included as an element in it, and that it is not infringed under any construction that would distinguish between it and the prior machines; that in respect to the combinations in controversy the defendant followed the older type of machines, particularly that represented in the Daverio Italian patent of January 25, 1878, and the patent of addition of March 15, 1878.

Want of Novelty.

If this patent were to be regarded solely with reference to the change which Odell made from the Gray mill, in replacing the two through-shafts by a single shaft and connecting the tie-rods to that shaft in the same way that they had been connected to their respective shafts before, this would not constitute patentable invention under the recent decisions of the Supreme Court which have been cited.

But it was already common in roller-mills to connect the movable roller-bearings of each outside roller at both ends with the same through-shaft, so that the rotation of that shaft spread and returned both rolls at the same time and by a simultaneous movement at both ends. The prior art in this respect has been somewhat illustrated in con-

nection with the second Gray patent. All that Odell did was to apply to the tie-rods of the Gray mill the through-shaft with its eccentrics at both ends operating upon the rods that move the two outer rolls simultaneously at both ends, as employed in the Daverio patent of January 25, 1878, for the same purposes.

If there was any invention in applying this through-shaft to the spring-bearing tie-rods of the Gray patent, or to tie-rods connecting with swinging levers, as distinguished from sliding boxes (which defendant denies), defendant's machine has not employed either of these features. It has, as in the Daverio machine (which the defendant was building), applied the through-shaft with its eccentrics to operate rods which bear no springs and which are directly connected with sliding boxes without the intervention of the levers which are essential to the operation of the combination exhibited in the Odell patent.

Another illustration of the application of a single shaft operated by a hand-lever, to spread and return the outside rolls of the two pairs by a simultaneous movement at both ends, is found in the Mechwart patent No. 251,124, applied for in this country April 22, 1880, and patented in Austria-Hungary, March 9, 1876, and in other foreign countries intermediately, the same machine being shown in *Die Muehle* of 1875, *Pappenheim* of 1878, and *Kick's Die Mehl-Fabrikation* of 1878.

In *Odell* v. *Stout*, Judge Sage says of this Mechwart patent (22 Fed. Rep., 166):

> "Whether the mechanism in this mill for controlling the rolls anticipates Odell's second claim in his reissued letters depends upon whether the weights and connecting parts are the equivalent of the transverse shafts and the coiled springs of the Odell mill."

He then proceeds to discuss the question whether weights are equally efficient with springs for the purpose of imparting elastic pressure, and expresses the conclusion that they are not, predicating his finding of the validity of this claim on that conclusion, apparently being under the impression that Odell had either invented the use of springs for giving elastic pressure to the rolls, or had contrived some new and more effective method of applying the springs to the rolls.

In support of the argument that Mechwart did not contemplate the use of the weights to afford elastic pressure, so as to permit coarse substances to pass through, he states that the inventor (p. 167)

> "Did not understand that the weights formed a yielding bearing, acting automatically, as do the coiled springs, but did understand that the weights must be raised by the operator,"

quoting, in support of that, a passage from the Mechwart patent as follows (p. 167):

> "In case of any obstruction getting into the mill the pressure is thrown off instantly by turning the handle, *m*."

Now an examination of the Mechwart patent and the Odell patent, respectively, will show that Mechwart does in terms refer to and describe the automatic yielding of his rolls to allow "solid obstructions" to pass through; while Odell, on the other hand, neither in his specification nor claims, *even mentions* any such capacity. Odell does not in his statement of invention, in his description of the machine, or in either of his claims, refer to the spring or to any yielding capacity in the roller-bearings. He does not even letter the springs in his drawings.

The facility with which a function never mentioned in the patent sued upon is sometimes imported into a claim

for the purpose of sustaining it, while the same function clearly described and illustrated in a prior patent is refused recognition, finds a singular illustration in this opinion. Mechwart had described, first, the provision for *elastic yielding* of rolls, and, second, a means for *instantly throwing* the rolls out of engagement, as an alternative, where instant spreading was required. Judge Sage quotes a fragment of the sentence which is dealing with the arbitrary separation of the rolls and omits that part of the same sentence which refers to automatic or elastic yielding of the roll provided for and fully described.

Mechwart says in his specification (Rec., p. 407):

> "The peculiarity in the present invention consists in the construction and arrangement of the devices for adjusting and holding the movable cylinder in each pair of cylinders so as to regulate with accuracy the approach of one cylinder to the other, whereby absolute contact and wear of one cylinder against the other is prevented, and *in case of any solid obstruction falling into the mill the rollers will yield*, or the pressure can be removed instantly by the attendant."

Again he says (Rec., p. 408):

> "The weights *h* and levers *k* upon fulcra *l* act, through the toes *n*, upon the lower ends of the respective levers *d* to force them outwardly. *These weights can be moved along upon the levers, so as to regulate the force with which they act in keeping the pairs of grinding cylinders together, and* in case of any obstruction getting into the mill *the pressure is thrown off instantly* by turning the handle *m*, and revolving the shaft *o*," etc.

The use of the hand-lever to *instantly* throw the rolls apart enables the operator to dispose of an *obstruction* which might exceed the yielding capacity of the rolls.

The same would be true in the defendant's machine, it not being desirable in any machine to have the automatic yielding capacity exceed narrow limits, otherwise defective grinding must result.

Odell did not make any change in the combination of the springs with the rods as he found them in the prior Gray patents. The advantage of using the single shaft, instead of the two shafts of Gray patent No. 238,677, is precisely the same irrespective of whether the yielding resistance is applied through a weight and lever, or through a spring, or altogether omitted.

Taking the Mechwart through-shaft connected with the outside rolls of both pairs so as to move them to and fro, and applying that to the old mechanism for moving the spring-supporting bearings of the Gray patent to and fro, certainly was not patentable invention. The advantage of the single through-shaft connected with the outside rolls of both pairs, so as to spread them by one shaft instead of two, as in the Gray, was precisely the same in each case. The present record, however, illustrates very fully the fact that springs and weights were known equivalents as means of applying the elastic resistance to the roller-bearings, long before the time of either Gray or Mechwart.

In many of the prior patents and publications heretofore alluded to, they are described and illustrated as alternative means of applying the elastic pressure, such descriptions and illustrations of both methods being contained in the same patents and publications. The Nemelka patents, the Lake patent, *Die Muehle* of 1875 and *Die Mehl-Fabrikation* of 1878, are among the instances in which this is true, and these might be greatly multiplied.

Judge Sage seems to assume that a weight cannot be a

mechanical equivalent for a spring if any advantage can be found in the one over the other. This theory would entirely destroy the whole doctrine of mechanical equivalents. No case can be named where one of two mechanical equivalents will not have some advantages peculiar to it as compared with the other. It is not pretended that the advantage of the weight and spring, respectively, is any different in character when applied to the yielding bearings of a roller mill than when applied as a means of elastic pressure in any other case. Each has its well recognized advantage and disadvantage as compared with the other. These are the same in roller mills as elsewhere. The weight is a more constant quantity than the spring. It does not lose its efficiency with time. It can be made to yield with an increasing or with a diminishing energy according to the path in which the lever swings. It can be multiplied in its efficiency by a series of levers. The spring, on the other hand, can generally be applied in smaller compass and will yield with a constantly increasing stress until it breaks, but its resistance changes with time and is affected by atmospheric conditions. Their relative advantages and disadvantages as applied to roller mills had been quite fully pointed out in publications on the art long before either Gray or Odell entered the field. The substitution of one for the other did not constitute invention, no matter how great or how small their relative utility. (See the extract from Kick, Rec., p. 275).

The office which a spring performs in roller mills is precisely that for which it is generally used elsewhere, to enable an automatic yielding to an unusual jar or strain. Whether it is better to use the mills with or without springs, is a question upon which millers are not agreed. Attention has already been called to the fact that complainant's expert Putnam, after laying great stress on

the value of springs in roller mills, had to confess that he had taken the springs out of the Gray mills which he was using in his establishment, and had been running them for a long time without springs.

With reference to this patent, See testifies as follows (Rec., pp. 215–19, A. 33):

> "In previous answers I have explained that in roller mills it is common and about universal to so mount one of the rolls that it will yield in case anything extra hard gets into the mill. This has been arranged for in a multitude of ways, but always involving, in one way or another, the holding of the movable roll to its work by means of weights or springs adjustable in effect, so as to produce a force capable of holding the roll rigidly to its work, but also capable of giving way properly in emergency. The movable roll is therefore held to its work with a yielding elastic pressure.
>
> "Springs to furnish the adjustable yielding load to hold the movable roller yieldingly to its work will be found, for instance, in the following exhibits, viz:
>
> "Gray patent No. 222,895.
>
> "Gray patent No. 238,677.
>
> "Daverio Italian patent of Addition.
>
> "English patent No. 2556, of 1879.
>
> "*Scientific American Supplement*, 1876, p. 617, Fig. 3, Dingler Translation.
>
> "*Die Muehle* for 1878, p. 86.
>
> "*Die Muehle* for 1878, p. 370.
>
> "Nemelka French patent.
>
> Weights for the same purpose, similarly applied to the movable roll instead of springs, will be found in the following exhibits:
>
> "Zaepfel patent No. 243,052.
>
> "McGlew patent No. 240,676.
>
> "Mechwart patent No. 251,124.
>
> "English patent No. 3,328, of 1877.
>
> "English patent No. 2,513, of 1879.
>
> "Daverio Italian patent of 1877.
>
> "Daverio German patent No. 2,867.
>
> "Daverio U. S. patent No. 200,263.

"In these last three patents of Daverio the movable rolls are only held to their work by the strain of the rope which drives them, and this driving rope is kept in strain by a weight adjustable on the tension lever.

"Weights and springs are well-recognized equivalents of each other as a means for holding a piece of mechanism in a given position against the influence of any force below a desired maximum, and to yield and furnish relief in case that maximum should be exceeded. On safety-valves weights and springs are fully recognized as equivalents for the performance of this identical work. In English patent No. 2513 of 1879, granted to Childs for Wegmann, the movable roll is held to its work by weights, but states, on line 6 of page 6, that the work may be done by weights, levers or springs, and on line 27, same page, says 'a spring may be used instead of the weight.'

"'*Die Muehle*' for 1878, p. 370, illustrates a Wegmann mill in which the movable rolls are held to their work entirely by springs.

"Mechwart's patent No. 251,124 employs weights for the purpose, and the Exhibit Mechwart Model is in conformity with this patent. The model is, however, so constructed, for the present purpose, that the weights may be removed and springs hitched to take the place of them. By testing the model under both circumstances it will be seen at once that the actions are identical.

"It has also been usual to apply, to roller mills, a roll-opening device for opening the rolls by hand, whether the rolls were held to their work by yielding pressure or not. Cams, or eccentrics, or cranks, were the devices usually employed to thus open and close the rolls. Sometimes a separate opening device was provided for each end of the roll. Sometimes both these opening devices were connected by a through-shaft so as to open both ends of the rolls at once; and sometimes, when there were two movable rolls in one mill, the single through-shaft, or some single arrangement, was made to open both ends of both rolls simultaneously by a single hand motion.

In some cases these opening devices forced the movable rolls open or closed them, and in other cases they only removed the working pressure so as to permit the roll to open itself.

"In Gray's patent No. 222,895, there is an eccentric to open separately each end of the roll.

"In Gray's patent No. 238,677, both these eccentrics are placed on one eccentric shaft so as to open both ends of the roll simultaneously, and both the eccentric shafts of the double-roller mill are there connected to work together so that both ends of both rolls open together and by one hand motion, the eccentrics connecting with the movable roller bearings by transverse shafts and springs.

"In the *Dingler Translation* one eccentric shaft, connecting with the roll boxes through transverse shafts and springs, opens both ends of one roll at once.

"In the exhibit '*Scientific American*,' Fig. 3, there are two movable rolls held to their work by a spring pressing on a lever on a single through shaft. A single cam serves to put on or take off the spring pressure and permit the simultaneous opening of both pairs of rolls.

"In Lake's English patent No. 3,328, of '77, for Nemelka's invention, and in 'Nemelka's French Patent,' a through eccentric shaft operating through rubber springs, serves in putting on or taking off the pressure from both ends of one roll simultaneously.

"In Daverio's U. S. patent, No. 200,263, and in his German patent, No. 2,867, and in his Italian patent of 1877, is shown a double roller mill formed with three rolls. Across the mill frame is arranged a through shaft provided with cams at each end and with a hand lever, and these cams connect, through rods, with the movable roll boxes. By turning the hand lever both ends of both rolls are simultaneously opened or closed, the stated purpose of the device in the U. S. patent being 'for shifting the rollers apart if this is desired.'

"In Mechwart's patent No. 251,124, and in the same machine illustrated in the earlier German books as previously referred to, there are two movable

rolls held to their work by weights. A single through shaft is provided with arms at each end and with a hand lever. By operating the hand lever both ends of both rolls may be opened or closed at once.

"In 'Daverio's Italian Patent of Addition' and in English patent No. 2,556, of '79, for the same invention, and in '*Die Muehle*' for 1878, page 86, a double roller mill is formed with three rolls, the rolls being held to their work by springs or rods. There is a single shaft placed across the machine and provided with eccentrics at each end and with a hand lever. By turning the hand lever both ends of both rolls may be simultaneously opened or closed.

"In all the roller mills above referred to the movable roll is held to its work by elastic pressure. In Poole's patent, No. 238,000, and in Poole and Miller's patent, No. 238,001, the movable rolls are not held to their work by elastic pressure, but by unyielding pressure. A single through shaft is arranged across the machine and provided on each end with toggle cams connected with the four movable roll boxes and the hand lever. By turning the hand lever both ends of both rolls may be simultaneously closed or permitted to open.

"In the Odell reissue patent in suit there is a single through shaft across the machine, provided at each end with cam slots, improperly called 'links' in the patent, and provided with a hand lever for turning it. The four movable roll boxes are in the form of pivoted levers, each provided with an inwardly projecting rod having springs and spring-adjusting devices of the exact kind shown in Gray's patent, No. 222,895. The inner ends of these rods, or transverse shafts as they are called in the patent, are provided with forks *h'* straddling the so-called links and having bolts engaging the cam slots therein. By turning the hand lever both ends of both rolls are simultaneously opened or closed, precisely as in the similar cases previously recited by me. The through shaft which opens and closes the rolls is also connected with two hopper gates, so that one hand movement may open both rolls and close both gates.

"The 2d claim of the Odell patent recites the combination, 'substantially as described,' of the following elements:

"First, adjustable rolls and boxes;

"Second, the four rods or transverse shafts;

"Third, the through shaft;

"Fourth, the link mechanism on the through shaft engaging the four rods;

"Fifth, a single hand lever connected with the through shaft.

"The claim reads 'adjustable rolls and journals for the 1st element,' but this obviously means 'adjustable rolls and boxes,' as I have above stated. The result recited for the combination is 'for simultaneously adjusting both sets of rolls by a single lever movement.' It appearing that the same result had been previously accomplished by substantially the same mechanism, I fail in detecting any practical novelty whatever in the recited combination. The so-called link-mechanism is very old, and has always been used on metal-turning lathes, used in every machine shop in the land, for opening and closing the two halves of the lead screw nut of the lathe. It is also a common device in the bolt work of safes for simultaneously throwing the numerous door bolts. The claim would therefore appear to me to recite merely an aggregation of the old movable roll-boxes, the old rods with their springs and adjusting devices, and the old through-shaft with its cams at each end and its hand-lever for simultaneously opening and closing both ends of both movable rolls, held, as of old, to their work by elastic pressure. The substitution of the old cam-slot of the engine lathe, or of the safe bolts, for the numerous equally well-known eccentrics, cams and cranks, previously used for precisely the same purpose, would not, in my opinion, endow the claim with practical novelty. The forks *h'* of the patent, forming part of the link-mechanism, are old and well-known devices in the machine arts, and are called in shop parlance 'spade handles.' Ever since I have had knowledge of the arts they have been in common use in the valve motion of steam engines."

No Infringement.

It is not claimed that this patent is infringed by the machine in evidence as Barnard & Leas Machine No. 2. The charge of infringement is confined to that shown in evidence by "Complainant's Exhibit Drawing of Defendant's Machine," the same referred to in connection with the third claim of the second Gray patent. The identical combination which is charged to infringe the third claim of the second Gray patent is also charged to infringe this Odell patent. Complainant seems to regard the application of a through-shaft to connect the rods which spread the rolls, so as to impart simultaneous movement to them, as sufficient invention to sustain two successive patents to different inventors. As has already been said, the construction used by the defendant is substantially the same as that of the Daverio patent of January 25, 1878, defendant having built Daverio machines before it applied this means of spreading to a horizontal machine.

In *Odell* v. *Stout*, above referred to, the court, in order to save this Odell patent from the charge of want of novelty, treated the spring-bearing rods to which the through-shaft was applied, and the swinging levers thrown forward and backward on their pivots by means of these rods, as essential elements of the combination. Neither of these elements are used in defendant's machine. Its sliding boxes, and the manner in which they are thrown to and from each other by the eccentric operated by the through-shaft, correspond both individually and in their combined operation with the Daverio patent above referred to. After laying stress on the fact that the spring on the rod in Odell "is not acted upon when the shaft, and by it and its connections the outer rolls, are moved by the hand-

lever" (which is not true of defendant's machines), the court, in discussing the question of infringement, in *Odell* v. *Stout*, says the defendant's mill (p. 168):

> "Is so constructed that, by means of a sleeve on the through-shaft and an arm connected to the outside lever, journalled on this shaft, the gates or slides controlling the feed discharge may be moved without moving the rolls; and by moving the inside lever, which is attached to the through-shaft, the roll-controlling mechanism is operated. Both levers may be grasped at the same time and moved together, and thus simultaneously adjust the rolls and the gates or slides.
>
> "This mechanism is substantially, almost identically, with that of the complainants' mill, including the transverse shafts with the coiled springs, forming the yielding bearings."

If the second claim is to be taken as referring specifically to the several elements recited in it, each constructed and combined substantially as described and shown in the Gray patent, defendant's machine does not infringe. While it has adjustable rolls and journals, they are not constructed in the manner of the Odell patent. It has sliding boxes, corresponding to the Daverio patent, but no shafts H corresponding with the Odell patent in any respect in which that patent is distinguished from the Daverio. Its through-shaft is in no respect, either in construction or operation, or office in the combination, distinguishable from the through-shaft in the Daverio. Its link mechanism follows the plan of Daverio. Its hand-lever corresponds to that which is connected with the through-shaft of Daverio for the same purpose. The entire combination performs the same office as the Daverio, and the same as that performed by the through-shafts in the other prior patents heretofore mentioned.

On the subject of infringement under this claim See testified (Rec., p. 218):

> "In defendant's machine No. 1 there is a single through-shaft provided at each end with cam-slots, and connected with two hand-levers for rotating it. Rods, engaging these cam-slots by elbows, reaching to engagement with the sliding bases of the yielding boxes, but are not attached to these bases through the medium of springs. The movable bearings yield automatically in emergencies, but in so doing no shifting takes place of the attachment of the bases to the rods, the bases remaining stationary when any automatic yielding of the movable boxes takes place.
>
> "There is no connection made between the roll-opening devices and any gate-closing mechanism.
>
> "Reviewing the 2nd claim of Odell's patent as containing some possible novelty in combination, and therefore as involving the spade handles as parts of transverse shafts, and elastic connections directly at the outer ends of these transverse shafts as the specific attributes of those shafts, I do not find the combination of the claim in defendant's machine No. 1."

Birkholz Patent No. 269,623, December 26, 1882.

Subject of Controversy.

This patent relates to a roller mill having a swinging casing pivoted to a standard, and having one roller-bearing fixedly mounted in the casing, the other roll being fixedly mounted in the standard, so that an adjustment of the casing to and fro with reference to the standard will adjust the rolls to different distances without disturbing the relation of the movable roll to the casing of the mill.

The only claim charged to be infringed is the first, which relates to the means of adjusting this swinging casing relative to the fixed standard of the machine. The charge of infringement is made against the Barnard & Leas machine No. 2 only.

It is not pretended that this machine contains a swinging casing corresponding to that of the Birkholz patent. It has a stationary casing which does not carry the rolls, and the rolls are necessarily moved independently of the casing. The same spring-carrying rod which was charged to infringe the Gray patent No. 222,895, and the second claim of the Gray patent No. 238,677, is charged to infringe this Birkholz first claim.

Defendant denies infringement and insists that it has only used well-known adjusting nuts for their customary purpose; that if the Birhholz patent is not confined to the specific organization described in the specification and recited in the claim, it is invalid for want of patentable novelty, and that when so confined it is not infringed.

The application for this patent as originally filed undertook to embrace certain features that were applicable to *roller mills generally*, and others that were applicable to mills in which the grinding rolls were so mounted as to "gravitate" toward each other. It states that the

> "Invention relates to roller-grinding mills in general, though some features thereof were designed more especially with a view of improving portable roller-grinding mills in which the grinding rollers are so mounted that one gravitates and, in operation, has a tendency to crowd towards the other, a mill, for instance, such as described in U. S. letters patent No. 255,715."

(See Birkholz file-wrapper, Rec., p. 252.)

The patent referred to as the one which he was *improving* was for the mill with the swinging casing in

which the roller was hung so as to gravitate inwards, as above described. He proceeded to state his improvement to consist

> "In combining the spring which regulates the pressure of the movable roller towards the fixed roller with the rod for gaging the space between the rollers in such a manner that the gage-rod may be adjusted without affecting the tension of the spring, and that, on the other hand, the tension of the spring may be changed without disturbing the adjustment of the gage-rod."

His application contained two claims predicated specifically upon this improvement in the mill having the rolls mounted in the swinging casing so as to gravitate inward, as described in this statement of invention—the first and second claims. It also contained two claims for features that were applicable to roller mills generally—the third and fourth.

He was compelled by the Patent Office to divide his application, and this he did by taking out of it the claims relating to the features applicable to roller mills generally, retaining in it only those relating specifically to the mill having a swinging roller-carrying casing pivoted to the standard, so that the roll mounted in it gravitated towards the opposing roll. These claims were at first rejected for want of patentable invention, but subsequently allowed.

Want of Novelty.

If the first claim is taken as limited to the specific construction which the defendant provides for accomplishing his purpose, or to the particular class of mills to which the claim is in terms restricted, it cannot be pretended that defendant has used either, so that it is only necessary to consider the question of novelty and patentability of

the device if relieved from limitation to this specific construction, though it is at best doubtful whether it could be sustained if thus limited.

If the claim is not limited to the combination of the "movable roller-carrying casing pivoted" to "the fixed roller-supporting standard," and also to a construction by which the nut for adjusting the tension of the spring and the nut for adjusting the rod which moves the swinging casing to and fro are each positively held against movement when the other is being operated, it is anticipated by the Nemelka German patent of 1875 and the Nemelka French patent of 1875, before referred to, the Lake English patent, the Gray patent No. 222,895, the Odell patent No. 250,954, the Pieper English patent, the Nagel & Kaemp U.S. patent 221,600 and the Daverio Italian patent of Addition of March 15th, 1878. (See in this connection dep. See, Rec., p. 205, A. 21–29.)

No Infringement.

Complainant has so fully realized the fact that the defendant's machine does not contain the essential elements of the combination recited in the first claim of the Birkholz patent that its expert has omitted from the drawings he has introduced to represent the Birkholz patent the elements defined in the claims, and to which the patent in terms relates. The distinguishing feature of the Birkholz patent is the swinging casing in which the movable roller is mounted so as to *gravitate* toward the fixed roller, and so that the roller moves with the enclosed casing, and not independently of it, as in other machines. This feature is referred to in the statement of invention and specifically recited in the claims as the primary element. Defendant has not used it, or any equivalent of it.

The "adjustable gage-rod" referred to in the claim is the means, and the only means, for spreading the rolls, performing, in this respect, an office in which the spring-carrying rods in defendant's machine have no agency and which is accomplished in the defendant's machine by rotating the pivot on which the upright levers carrying the rolls are supported.

The peculiar element for adjusting the tension of the spring independently of the rod, and the tension of the rod independently of the spring in the Birkholz patent, are altogether wanting in the defendant's. They are thus described in the Birkholz patent (Rec., p. 254):

> "At the front side of the casing the gage-rod passes through a box, C^2, formed thereon, and is encircled by a stout spiral spring, G, bearing with one end against the bottom of said box and with the other end against a cap, G′, slipped on the gage-rod, and provided with lugs g' g', which enter longitudinal grooves g g in the shell of the box, so that the cap may slide but cannot turn in the box.
>
> "In order that the gage-rod may be turned in its nut F′ to gage the space between the rollers, it is provided with a cross-bar or hand-lever, H, fitted on it next to the cap G′, the gage-rod being in this instance flattened on one side, to so engage the correspondingly-formed eye of the hand-lever that the latter may slide on it. Interlocking recesses and projections are formed respectively on the adjoining faces of the cap G′ and hand-lever H, so that the latter can be turned only on the application of considerable force to it, or after the cap has been first disconnected from it, according as the interlocking recesses and projections are rounded or square-cornered.
>
> "The outer flattened end of the gage-rod is screw-threaded and carries a nut, I, constructed with a hand-wheel for turning it with facility. By adjusting this nut I the tension of spring G can be regulated without changing the adjustment of the gage-rod.

"The journal-boxes of the rollers are accurately fitted at top and bottom in their guides, but have considerable lateral play therein. Each journal-box is provided at the center of the side facing the bite of the rollers with a shallow recess, in which is seated an elastic cushion, J, of rubber or wood, made long enough to protrude a little from the recess in the box. A set-screw, K, bears on the opposite side of the box, being fitted in a screw-threaded hole in the side of the supporting-guide of the box.

"When the box has been properly adjusted the elastic cushion will be somewhat compressed, bearing with considerable friction against the guide, which, together with the frictional pressure of the set-screw on the opposite side, will hold the box so firmly as to prevent it from moving endwise in its supporting-guide, allowing it, however, to accommodate itself to slight inaccuracies of alignment. By proper adjustments of the set-screws K the required parallelism of the rolls may be easily obtained, and lost motion, due to the wear of the boxes and journals, may also be readily taken up.

"The casing E is at the top constructed with a funnel, E', upon which a hopper, L, is to be superimposed. The feed from the funnel to the rollers is governed by a feed-slide, M, as usual. The feed-slide is arranged to slide in guides on one side of the funnel. To its upper end is pivoted a rod, N, which extends from the slide at an acute angle of about forty-five degrees, more or less, across and through the opposite side of the funnel, its outer end being screw-threaded and entering a nut, N', which is swivelingly connected to the funnel, as clearly shown in Fig. 1. This arrangement of the feed-slide and its adjusting rod and nut relatively to one another causes a reciprocal locking of each by the other, so that no jam-nut or other supplementary locking device is required for preventing the shifting of the feed-slide by the vibrations of the mill."

In defendant's machine there is no means of positively holding one nut in place while the other is being rotated. The moment the nut for adjusting the spring begins to

apply any substantial pressure it rotates the rod on which the spring is mounted.

If it be said that it is possible to hold the rod in place by hand while operating the nut to compress the spring, the same would be true of any other spring-carrying rod. In both the prior Gray patents, as well as in the older patents above referred to, the spring tension can be adjusted independently of the rod, and if the first claim of the patent was to be construed as covering any element that permitted this to be done, as distinguished from the construction by which each is *positively held against disturbance* while the other is being operated, the patent is invalid.

It would be more practical to impart to the nut before and behind the spring of the Gray tie-rod a simultaneous movement, so as to adjust the tie-rod through it without disturbing the tension of the spring, than it would to hold the spring-carrying rod of the defendant's machine against partial rotating in one direction or the other while screwing up the spring-compressing nut. It is practically impossible to hold one nut against disturbance while applying rotating power with the other hand to a nut that tends to disturb the first. This would be especially true where, as in these adjustments, considerable power is required. It is much easier to impart perfect uniformity of movement to two objects than it is to hold one still while applying to the other a force that moves it and tends to move the first. It was to avoid this that Birkholz provided a means of *positively locking* each nut alternately when making the adjustment of the other, which the defendant does not use. On the subject of infringement, See testifies (Rec., pp. 207-212, part of A. 21 (same begins p. 205) to A. 28, incl.):

> "In the Birkholz patent in suit the movable roll is carried in an enclosing case E, which is pivoted at

e to a frame portion, the pivot being located above the fixed roll, so that the weight of the movable roll and its enclosing case tends to press the movable roll to the fixed roll. In addition to this gravity pressure there is a rod F screwed into a swing-nut on the mill-frame and carrying a spring pressing on the outside of the casing, the effect of this spring being to press the rolls together. There is a collar *f* on the rod which forms an adjustable stop for the approach of the rolls. If the rod be screwed more or less into its nut F', the position of this stop may be adjusted. A hand-nut I on the outer end of the rod serves in adjusting the tension of the spring. A handle H, fixed to the rod against rotation, but free for endwise movement, serves as a means of turning the rod to change the position of the collar *f*.

"It will therefore be seen that turning the nut I on the rod adjusts the tension of the spring, and that turning the rod by the handle H adjusts the position of the collar *f*. Now, it will be obvious that some provision must be made to prevent the accidental turning of the rod when the nut I is turned. If that nut fits a little too tightly, or the thread got dirty, the entire rod would turn and change the grinding adjustment before the nut I could properly turn on the rod. This is guarded against by a rather peculiar construction. Outside the spring is placed a cap G', free to move endwise, but prevented from rotation by lugs *g'* engaging the spring case. The outer hub-face of this cap is provided with teeth or recesses. The handle H, which is used to turn the rod, has its inner hub-face provided with similar teeth or recesses to interlock with those of the cap. The cap being incapable of rotation and the handle H being thus locked to it, it is evident that the handle and rod cannot be rotated unless extraordinary power be applied to the handle, sufficient power to force the teeth out of engagement. Such power is to be applied when it is desired to turn the rod and adjust the grinding distance, and when the nut I is turned, to adjust the tension of the spring, the teeth prevent the improper rotation of the rod.

"The first claim of the Birkholz patent in suit recites a combination of elements as follows, viz.:

"First: A stationary frame standard.

"Second: The fixed roller supported thereby.

"Third: The swinging casing.

"Fourth: The movable roller carried thereby.

"Fifth: The adjustable rod, with its shoulder to limit the grinding distance.

"Sixth: The nut into which the fixed end of this rod screws.

"Seventh: The spring connected with the rod; and

"Eighth: Device for adjusting the tension of the spring independent of the rod movement.

"The last element I have mentioned is not recited directly in the claim, which simply mentions, 'the spring connected with said rod and adjustable in tension independently thereof.'

"This recitation of function I take to mean, of course, the means by which the function is realized. The function of adjustability of spring independent of the adjustment of the length of the rod for grinding distance being an old function, I assume that the claim has reference to the described devices for permitting the spring to be turned without resulting in the accidental turning of the rod.

"In defendant's machine No. 2 the box levers are pivoted on eccentric pivots independent of the roll casing. The levers are held to their work by spiral springs compressed on a rod, as in many of the references, the spring tension being altered by adjusting a pair of lock-nuts on the rod. There is a hand wheel fastened on the rod by which it can be turned to alter the grinding distance. When the nuts *j*, *k*, are to be turned to adjust the spring tension there is nothing to prevent the improper turning of the screw-rod and thereby disturbing the grinding adjustment. It therefore becomes necessary, when altering the spring tension by these nuts, to hold the hand wheel by hand to prevent the improper turning of the screw-rod. In the Birkholz patent, if the hand wheel I be accidentally held or restrained while

turning the rod, the spring tension would become altered.

"I do not find in defendant's machine No. 2 a combination responding to the 1st claim of the Birkholz patent in suit, for the reason that the machine does not contain the same elements, or the same arrangement, or similar necessities for provision, or the same provisions as are set forth literally or 'substantially' in the Birkholz patent.

"Q. 22. Comparing the defendant's machine No. 2 with the Birkholz patent and also with the Nagel and Kaemp patent, state with which patent defendant's machine most nearly corresponds and give your reasons for any opinions you may express.

"A. Defendant's machine No. 2 corresponds with both the Nagel and Kaemp patent and the Birkholz patent in having its fixed roller supported by the frame, in having its movable roller supported in a pivoted lever device, in having the supporting lever connected with the frame by a rod to serve in adjusting the grinding distance, and in having the spring connected with said rod and adjustable in tension independent of the adjustment of the rod for grinding distance.

"Defendant's machine differs from both the patents in that both the patents carry the movable roll in a single bifurcated lever, so that a single adjusting box answers for both ends of the movable roll, while defendant's machine has an independent lever and independent adjustments for each end of the movable roll. Defendant's machine differs again from both the patents in that both of the patents have their box levers swinging on unalterable pivots, while defendant's machine has its box levers pivoted on eccentrics to serve as means for opening the rolls.

"Defendant's machine conforms to the Nagel and Kaemp patent in that the lever pivots of both are located below the movable roll and the adjustments effected by vertical rods, engaging arms projecting horizontally from the box levers, while in the Birkholz patent the lever pivot is located above the fixed roll, so that gravity tends to keep the rolls closed

regardless of the presence of the spring, and some device is essential to keep the rolls from damaging contact.

"Defendant's machine corresponds with the Nagel and Kaemp patent in that the spring is located between the outreaching arm of the box lever and the part to which the fixed end of the rod is attached, the tendency of the spring in both cases being to separate the arm from the frame part as far as the adjustable length of the screw-rod will permit, while in the Birkholz patent the spring is located entirely beyond the box lever and between it and an adjusting nut on the outer end of the rod.

"Defendant's machine differs from both patents in that defendant's machine has no provision for preventing the rod from turning while the spring-adjusting nuts are being turned, except by taking hold of the hand wheel fast on the rod, while in the Birkholz patent the handle which turns the rod is interlocked with the non-rotary spring cap or spring cover, and in the Nagel and Kaemp patent the case cover which turns the rod can be locked against rotation by means of its interlocking *q'*, which can be engaged with a suitable hole in the box lever. Where three structures present so many points of difference in detail and similarity of detail, it is difficult to state a definite preponderance of correspondence.

"Q. 23. Have you read, and do you understand the deposition of Mr. Smith regarding this Birkholz patent, as compared with defendant's machine No. 2, and, if so, do you concur in the opinion therein expressed, and, if not, wherein and why?

"A. I have read Mr. Smith's deposition and believe that I understand the same. In some of his conclusions, as expressed, I do not concur.

"For instance, in stating the function of the combination of the first claim of the Birkholz patent, as he does at the end of p. 41 of the printed record, he ascribes no new performance to the combination, and recites only performances common to the Birkholz combinations and to prior combinations in roller-mills, thus entirely ignoring the element of possible

novelty in the Birkholz combination. Applying his language in that paragraph, it would correspond equally well with the Birkholz construction or the Nagel and Kaemp construction.

"'A fixed support for the fixed roll,' and 'a movable support for the movable roll, and means for connecting the movable support to the fixed support for the purpose of holding the movable roll in its proper relation to the fixed roll, and to transfer the pressure on the movable roll back to the frame or fixed roller-support,' is the very object and performance of the Nagel and Kaemp construction; and 'to regulate and adjust the minimum distance between the grinding faces of the rolls, and also to regulate and adjust the pressure by which the movable roll is urged towards the fixed roll, in such a manner that the grinding adjustment may be made independently of the grinding pressure and the grinding pressure may be regulated independently of the grinding adjustment,' is the very object and exact performance of the Nagel and Kaemp construction.

"He then refers to his elemental sketch, Fig. 1, in which he produces a totally inoperative device by reason of the fact that turning the hand-wheel I, to adjust the tension of the spring, is just as apt to turn the rod in its nut F and disturb the grinding adjustment without doing anything to the spring, as it is to turn the hand-wheel on the rod. I presume the sketch is intended to be taken on the pre-supposition that the interlocking teeth forming a salient and essential feature in the Birkholz patent are present in this elemental sketch. Furthermore, in this elemental sketch, of which Mr. Smith states: 'These elements are shown in the same relative positions as in the Birkholz patent,' the stop-collar *f* shown in the patent as being far from the spring case and near the swing-nut of the rod, and arranged to contact with the covering case of the movable roll, is shown as engaging the inner roll of the spring case, and the covering case of the movable roll is entirely omitted, and the swing-nut which the rod engages has been moved far inwardly so as to be directly under the fixed roll. It is stated by Mr. Smith in explanation,

so far as the covering case is concerned, 'that it has no function in this combination.' In the Birkholz patent this covering case forms part of the weight load pressing the rolls together, a part of the load beyond the power of the adjustment, which applies alone to the spring. The Birkholz patent, however, contemplates also the omission of this casing.

"In Fig. 2 of his elemental sketch he has created an imaginary arrangement not suggested by the Birkholz patent or by defendant's machine No. 2, and prepared evidently to illustrate an evolution leading from one operative construction to a far-distant operative construction, through an inoperative construction.

"The scheme proposed in Fig. 2 would be totally inoperative for roller-mill purposes, for the following reasons: The object of the spring is to yield under extraordinary pressure and allow the movable roll to fall away from the fixed roll. With a relative arrangement of springs and pivots of his sketch No. 2, the vertical-spring movement must equal about twice the vertical-roller movement, and considerable vertical roller-movement results in a mere trifle of roller-opening. The power of the spring to hold the rolls closed is therefore many times multiplied and in a disadvantageous direction.

"In his Fig. 3 a rational construction begins to appear, the lever pivot being located under the movable roll so that a unit of spring movement is corresponded to by a unit of roll-opening movement. A third handle now also appears on the adjusting rod, and here also the spring takes up an entirely new position. Instead of being located between the lever and an outside adjusting nut on the rod, as in the Birkholz patent, it is given a location between the lever and a fixed part of the frame, as in the Nagel and Kaemp patent. This new locating of the spring has rendered the Birkholz handles totally inoperative for the purpose of adjusting the grinding distance, and has rendered the handle H useless for any purpose whatever, and has necessitated the addition of the third handle H, shown in dotted line over the spring case, and also the rigid collar *f* under the

handle. His Fig. 4 shows in a general way the Barnard and Leas arrangement, with the exception of the eccentric pivot for the roll-lever. In this figure the handle H, of his Fig. 3, incapable of rotation on the rod, and capable of endwise motion thereon, has been omitted, and in place of it we find the nut I possessing the precisely opposite qualities of capacity for rotation on the rod, but incapacity for endwise motion thereon. In Figs. 1, 2 and 3 the characteristic interlocking teeth of Birkholz are needed at the faces of the handle H, and the spring-cap, to keep the grinding adjustment from being altered when the spring-tension is altered by the Birkholz method, while in Fig. 4, as in the Barnard and Leas machine No. 2, there is no self-holding feature to prevent the rod from turning while the spring-tension is being altered.

"After this irrational exposition of evolution Mr. Smith reaches the conclusion that the combination of Birkholz is found in Fig. 4 of his elemental sketch. His language of comparison on p. 43 would apply equally well to English patent No. 4,100 of '77, as he could say with truth:—I find 'the roller-supporting standard' in the frame standard C of Birkholz and in the fixed housings of the frame *a* of Pieper; 'the roll-carrying casing pivoted thereto' is found in the casing-lever E of Birkholz and in the lever H of Pieper; 'the adjustable gauge-rod' is found at F in Birkholz and at *h* in Pieper; 'the nut thereof held by the standard' is found at F on the Birkholz and at *x* in Pieper; 'the spring connected with said rod and adjustable in the tension independently thereof' is found in the spring G and nut I on the end of the rod in Birkholz and in the spring *g* and nut *x* in Pieper; in both Pieper and Birkholz a handle is turned for the purpose of making the grinding adjustment by shortening the distance between the box lever and the fixed-frame part to which the other end of the rod is attached; in Birkholz the spring-adjusting nut I turns when the rod F turns in making the grinding adjustment, and in Pieper the rod *h* and its nut *x* both remain stationary when the upper nut *i* is turned to make the grinding adjustment,

therefore 'this grinding adjustment is made without effecting the spring pressure.' In Birkholz the nut I may be turned without turning the rod F into its nut F', and in Pieper the nut *i* is turned with the rod *h*, no change of relation taking place between the nut and the rod; 'therefore the spring pressure may be adjusted without changing the grinding adjustment.' Following the same line of reasoning whose fallacy flows from the irrationality involved in the supposed illustrating evolution, Mr. Smith could also have said, 'I therefore find in the machine No. 2 of the defendants all the elements of the' Pieper English patent 'operating together to produce the same result,' or 'I therefore find in the' Pieper English patent 'all the elements of the combination set forth in the first claim of the Birkholz patent, operating together to produce the same result.'

"Q. 24. Taking Fig. 2 of Mr. Smith's sketch, in which the axes of the rolls are shown in the same horizontal plane, and a line drawn from one axis to the other passes through the contacting point, in what direction would the force be exerted by the material passing between the rolls to throw them apart?

"A. In the direction of the supposed line, and tending, largely, to tear the lever asunder. If you will imagine a wedge driven down between the rolls to separate them, I think the effect will properly picture itself in your mind. The roll will, however, yield, but under serious disadvantages. Comparing this with Figs. 3 and 4, it will be seen that if the spring were removed the movable roller would automatically fall away from the fixed roll. In other words the spring, and the spring only, maintains the movable roll in working position.

"Q. 25. In which figures do you propose to remove the spring in above answer?

"A. Figures 3 and 4 of 'Complainant's Exhibit Smith's Sketch No. 2.'

"Q. 26. Suppose the roll A in Mr. Smith's sketch Fig. 2 should be driven faster than the roll D, both rolls being moved, as is common nowadays, what would be the effect if the swift roll should catch upon some substance like a nail, too hard to

be crushed and too large to pass through the rolls at their adjustment?

"A. The swift-moving roll A would tend to carry the obstruction downward at a rate of speed exceeding the reactive speed of the roll D. The result and effect would be a downward pressure by the obstruction upon the movable roll which would resist the lifting of the movable roll and possibly entirely prevent the relief contemplated in making one roll automatically yielding.

"Q. 27. What would be the effect, under similar conditions, in defendant's machine?

"A. No downward tendency at the grinding crack would have any effect whatever to resist the prompt opening of the rolls to give instant relief.

"Q. 28. In what direction must the roll D in Mr. Smith's Fig. 2 move with reference to a horizontal line drawn between the axes of the two rolls, in order to give relief; and in what direction would the roll D in his third and fourth figures move in reference to similar line for the same purpose?

"A. In Fig. 2 the roll D must move diagonally upwards, almost at right angles to the line you mentioned, the line you mentioned representing a path of direct separation. In his third and fourth figures the roll would move directly in line with that line of direct separation, as distinguished from at an angle to it."

The series of sketches by which complainant's expert Smith undertakes to bridge the difference between the Birkholz construction and the defendant's machine are not true to either. They distort both, and are obliged to do so in order to present any resemblance. It is much easier to trace the genesis of the defendant's spring-carrying rod from the Nagel & Kamp machine or other prior devices than from the Birkholz patent.

SUMMARY.

Defendant's machines are, except as modified by peculiarities which are original with them, derived from the prior art, not from complainant's patents. It was the privilege of defendants to select out of this art whatever agencies it afforded for effecting the several adjustments commonly made in roller mills. The aggregation in a single machine of the instrumentalities used in other machines for the same individual purposes would not, even if new, have entitled either the complainant or the defendant to a patent. It could not exclude the defendant from the same latitude in availing itself of the expedients furnished by the prior art. It certainly cannot prevent it from making a different selection of agencies used in prior roller mills for the same purpose.

But all the adjustments referred to in the claims of either of complainant's patents had been associated in the same machine prior to the alleged inventions of the patentees, and effected by substantially the same instrumentalities as those used by defendant. To some of these prior machines defendant's organization corresponds much more closely than to either of complainant's patents. So far as defendant has modified these organizations or the instrumentalities for effecting the several adjustments, it has been upon different lines of advancement from those pursued by either of complainant's patentees, and with scrupulous avoidance of whatever was peculiar, either in plan or in structural features, to the patents in suit.

Instead of affording defendant suggestions or assistance in the directions in which it has modified older types of machines, complainant's patents would have tended to

lead away from the simple, compact and efficient combinations which have been adopted.

Defendant is entitled to protection against disturbance in the use of what it has adopted from the prior art, and in such modifications as it has introduced, quite as much as complainant is entitled to protection in what is peculiar to its patents. If any of complainant's patents are to be sustained, it must be by drawing shadowy distinctions between them and what preceded them. If saved from the prior art by such distinctions, they cannot be expanded to dominate the modern art, but must be held strictly to the specific combination of devices by which they effect their purpose, which defendant has not adopted.

Respectfully submitted,

ROBERT H. PARKINSON,

Of Counsel for Appellee.

JAMES H. McKE...

156-261

Supreme Court of the United States.

OCTOBER TERM, A. D. 1894.

No. 70.

THE CONSOLIDATED ROLLER MILL COMPANY,
Appellant,

vs.

THE BARNARD & LEAS MANUFACTURING COMPANY,
Appellee.

SUPPLEMENTAL BRIEF FOR APPELLEE.

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SUPPLEMENTAL BRIEF FOR APPELLEE

The brief filed in behalf of appellant (which I had not seen when my brief was prepared) persistently assumes for the adjustments of the Gray patent 222,895 capacities which they do not possess, and denies to the Nemelka and other machines capacities necessarily incident to the mechanism which they exhibit and describe with exceptional explicitness and with the emphasis of reiteration. The fictitious character of these assumptions is disguised in some instances by using the terms "parallel" and "independent" in one sense when applied to the prior art and in a different sense when speaking of the Gray adjustments.

I do not propose to review the brief in detail, but merely to indicate certain fundamental errors in the premises on which appellant proceeds, referring to my former brief for a fuller exposition of the facts.

FIRST.—CONCERNING THE SPREADING DEVICE.

Appellant's argument proceeds upon the assumption that the Gray invention

> "consisted in combining with the adjustments for tram, parallelism, grinding distance and spring pressure, a separate spreading device independent of and not affecting any of these adjustments."

It practically concedes that all these adjustments were in the older mills, but lays great emphasis upon the theory that the Gray separating device was "separate" and "independent of" the means provided for other adjustments, and alleges that this was not true of the older mills.

The fact is the reverse of this. Gray undertook to utilize as the means of spreading the rolls the two rods on which the other adjustments were made, by sliding these rods to and fro endwise. In this respect he departed from Nemelka, who separated the rolls by rocking back and forth the shaft on which the swinging arms or levers were mounted. Instead of making the spreading of the roll independent of the other adjustments, Gray's construction destroyed the independence which was incident to the Nemelka (and adopted from the Nemelka by the defendant) and introduced a disturbance of other adjustments which it was important to preserve and which were preserved by Nemelka, Daverio and other old constructions.

The terms of the Gray patent, especially the amendments introduced after rejection on prior patents, recognize the fact that the spreading of the rolls by some suitable means which did not disturb the other adjustments was a common incident of roller mills before Gray entered the field, and the Gray patent was refused until limited to "*the*

special devices" for separating the rolls constructed and arranged as shown. (*See brief for appellee, pp. 54–60.*)

In the older mills, including the Nemelka, the provision for separating the rolls and returning them to the same position was such that it could be done by a single movement each way with absolute precision and with no disturbance of parallelism (either in the direction which my opponent designates as "tram," or in any other direction), or of grinding distance, or of spring pressure. In the Gray machine the spreading of the rolls by the release of the tie-rods at each end must invariably disturb the parallelism and require careful readjustment to restore it. The tie-rods can only be brought back one at a time. During the period of screwing up the respective tie-rods to working position by means of the nuts O, the rolls are out of parallelism and will so remain if either rod is screwed up more tightly than the other. If any particles of dust or meal get into the socket entered by the shoulder of either rod the parallelism will not be restored by any accuracy in screwing up the nuts, and a laborious readjustment will be required. If there were substituted for the shoulder and nut, an eccentric actuating the tie-rods endwise for the purpose of spreading and returning them (the alternative construction illustrated by Gray), there would still be an inevitable disturbance of the parallelism and no means by which it could be restored with the accuracy or ease insured by either the Nemelka or the Daverio construction. The impossibility of preserving or restoring the parallelism by any means provided in this Gray patent was such that Gray was obliged to subsequently patent a clumsy and circuitous means of preserving the parallelism, exceedingly awkward as compared with the simple and direct means provided by Nemelka and adopted from Nemelka by this defendant. Gray him-

self, in testifying as to the importance of the invention of his subsequent patent (238,677), wherein he undertook to remedy the disturbances of parallelism inherent in the spreading mechanism of 222,895, admits that the adjustments were lost whenever the rolls were spread by the means provided in 222,895, and laborious readjustments made necessary. Speaking of the improvements purporting to be covered by the subsequent patent, and their advantage as compared with the adjustments necessary in the machines of patent 222,895, he says (*dep. Gray, p. 87, A. 68, Rec.*):

> "Before this device was put onto our machines the rolls had to be thrown apart by unscrewing the hand-wheels and destroying the adjustment of the grinding rolls. And it usually took a long time to get the rolls back to their proper grinding adjustment. Of course, while they were running without the proper adjustment, the rolls were not doing their work properly, causing waste and great loss. By this throw-out device the rolls can be thrown apart without changing the grinding adjustment, so that there is no time lost; no stock spoiled by resetting the machines."

The Nemelka patents have identically the same means for separating or spreading apart the rolls as that adopted by defendant, and have the same immunity against disturbance in each of the other adjustments, viz., the two swinging arms or levers which separate the rolls are pivoted on a common shaft which rocks on bearings eccentric to these pivots, thereby causing the pivots of the swinging arms to simultaneously advance towards or recede from the stationary roll. The rocking of this shaft to separate the rolls or return them to position is in each case (the Nemelka mills and defendant's) provided for by a hand-lever which, by a single oscillation, effects the uniform separation of the rolls throughout their length while all the other

adjustments are preserved, and in each case the return of the hand-lever to the abutment against which it rested before spreading restores the exact *status* in every respect, except as the shrinking of the rolls or their connections due to a change in temperature may be a disturbing element. This disturbance, due to change of temperature, is incident alike to Gray and to all metal rolls. If, after the rolls have been spread sufficiently long to partially cool, it is desired to return them to the same relative position they occupied before, a readjustment of the elements by which the grinding distance is determined will be required in each case; this, in the Gray construction, involves necessarily a loss of the parallelism, while in the Nemelka the roll is advanced uniformly at both ends by a single manipulation and the parallelism is preserved.

If it be objected that the operator in returning the Nemelka rolls to position might carelessly throw the hand-lever into a different notch than that from which it was withdrawn, it is still more emphatically true that the operator might fail to screw up the Gray tie-rods to exactly the same degree of snugness as before they were spread. But in the Nemelka the adjustment can, if desired, always be such that the inner notch or the contact of the hand-lever with the box of the roll will represent the working position, or any other notch can be utilized for the same purpose. Nemelka has provided a number of notches, thereby enabling the roll to be fixed by means of the hand-lever at any desired degree of approach or separation. If all the notches between the first and last were omitted, the Nemelka construction would still have all the adjustments of the Gray, with the superadded advantage of greater facility, accuracy and uniformity of movement at both ends of the roll when such uniformity was desired, but by the omission of the notches it would

be deprived of one of the advantages over Gray which these notches give in the facility of adjustment to different grinding distances. Each notch has the same capacity that it would have if all the others were omitted, while the series of notches affords a convenient means of arbitrarly and instantly varying the capacity for grinding distance without stopping the mill, whenever there is occasion to do so.

If my opponent means by "a separate spreading device independent of and not affecting any of these adjustments" a device which is not a factor in making either of the other adjustments, or which does not during the time the rolls are spread interrupt the other adjustments, the spreading device of the Gray patent has none of these qualities. It is necessarily an instrument in effecting and maintaining the adjustments to parallelism, to grinding distance, and to pressure, and when used to spread the rolls it temporarily disturbs the pressure, the parallelism (in both directions) and the grinding distance. Upon the accuracy with which the operator in returning the rolls screws the separate tie-rods to the position from which they were released depends the approximation to restoration of each of these adjustments. Every advantage which my opponent attributes to the Gray is possessed by the Nemelka, while many of these advantages are wanting to the Gray.

The tacit assumption that Gray is to be credited with discovering the importance of spreading the rolls is excluded by the terms of his patent and by the prior art. The recognition of the fact that the practice of spreading the rolls was already familiar is indicated in the terms of his patent.

Spreading of the rolls when out of use was prescribed and provided for in so many patents and text-books prior

to Nemelka that when Nemelka showed means that enabled them to be conveniently thrown apart, or separated, it was unnecessary for him to reiterate the injunction that they were to be separated when out of action, but he has done so repeatedly.

In his first Austrian patent (that of January 15, 1875—prior to the Nemelka Austrian patent and Nemelka French patent illustrated in defendant's model) he describes the lever for spreading the rolls as (*p. 305, Rec.*):

> "Constructed in such manner that it can draw back one roller when it is necessary, which must be done by all means when the rollers are out of action, since the product long standing still between the rollers would easily attach itself fast to them, to their disadvantage."

His later Austrian, French and English patents all provide the means for instantly separating the rolls, but recognize the fact that when this means is described it is unnecessary to enumerate all the occasions for separating the rolls which were familiar in the art. The capacity of the eccentric pivots when turned by the hand lever to move the rolls apart is, however, mentioned in each of the French, Austrian and English Nemelka patents. The English patent states that (*p. 323, Rec.*)

> "On stopping work, the pressure must be taken off and the rolls drawn back;"

and specifies two different modes of drawing them back, the first (and that obviously most convenient) by the swinging levers, and the second by means of screws, either of which, as shown, will answer the purpose. In another place, in describing a mill which has a double set of levers, it speaks of this as facilitating the "drawing back of the rolls quickly."

The fourth claim is for

> "The arrangements for drawing the rolls apart or together by means of excentrics,"

as well as for the use of eccentrics as means for exerting pressure.

The eighth claim is for

> "The arrangement for drawing apart the rolls by means of the excentric *l*, as described."

Die Muehle of 1875, after describing a means by which the "outer roll can be moved away from the inner," stated that (*p. 273, Rec.*)

> "This appears to great advantage for the starting of the machine, in order not to let this be driven under full pressure."

The Daverio Italian patent of 1878 described a cam-shaft to

> "spread the outside cylinders from the middle one"

which rocked the swinging arms to and fro so as to preserve their parallelism when spreading and returning the rolls (*p. 299, Rec.*).

The separation of the rolls in any case has simply to be sufficient to withdraw them slightly from the grinding position which they occupy when working on the material which they are set to grind.

The statement that in the Nemelka machines there is no provision for spreading the rolls without interfering with other adjustments, and the representation that spreading is not mentioned, is so obviously untrue (unless it simply means that Nemelka uses the word "separate" instead of "spread"); the separation of the rolls when not in action was so common an expedient in the art and so plainly recognized as such by the Gray patent; it is so evident that the Gray means for spreading the rolls in-

volves an objectionable disturbance of the adjustments which is avoided by Nemelka, and gives no capacity for adjustment that is not as conveniently or more conveniently supplied by Nemelka; the defendant has so plainly adopted the exact means of Nemelka for spreading the rolls and thereby avoided the difficulties inherent in the Gray; that my opponent's assertions seem to proceed either upon a misunderstanding of both the Gray and the Nemelka or upon a confusion of terms. If all that he really means is that while the Nemelka rolls are spread they are not in grinding relation or under pressure, that is necessarily true of Gray, while (unlike the Nemelka and defendant's) the parallelism of the Gray rolls is disturbed in both directions by the spreading, and the restoration of either of these adjustments depends upon the accuracy with which the tie-rods are severally screwed to their former position. If the operator succeeds in screwing them to exactly the position which they before occupied, the restoration of all the adjustments is then not more complete than it is in the Nemelka when the simple act of turning back the hand-lever has been performed, and during the screwing up of the tie-rods there is necessarily a mischievous departure from parallelism.

In the Nemelka (as exhibited in the French and Austrian and in some figures of the English patents) all the adjustments are preserved and absolutely restored when the separating lever is turned back to the abutment or fixed notch from which it was withdrawn for the purpose of separating the rolls.

SECOND.—ERRONEOUS ASSUMPTIONS ABOUT ADJUSTMENTS TO PARALLELISM AND PRESSURE.

Appellant insists that when the brackets *t* of Nemelka are moved the screws *n* must also be readjusted, and that "the position of the Nemelka roll is the resultant of these two forces, and not merely the sum of their individual effects." There is precisely the same necessity for both vertical and horizontal adjustments in the Gray, if parallelism is to be restored when disturbed by wear, or if it is to be preserved when there is a change of grinding adjustment, and there is no occasion for these several adjustments in the Nemelka except under the same conditions. In fact, a greater number of readjustments are required in Gray than in Nemelka whenever the grinding distance is changed or whenever the parallelism is to be restored, and the resultant position is less directly obtained. Any readjustment of the nuts on rod G of the Gray patent changes the level of that end of the roll as well as its horizontal distance from the other roll, and this change takes place in the arc of a circle described about the pivot of the swinging levers. It also changes the pressure. If it is desired to have the level of the rolls the same as before the adjustment was made, there must be a compensating adjustment of the eccentric pivot. This pivotal adjustment again moves that end of the roll in a curve eccentric to the curve in which the roll swings on its pivot, and a curve which varies in divergence according to the position of the eccentric at the time the adjustment takes place, and this again tends to vary the pressure. To bring the Gray roll to the same level at each end that it occupied before the readjustment of the nut, and to restore the pressure to what it was before, re-

quires a variety of separate manipulations at each end of the roll and a gradual and indirect approach to the resultant, which can only be approximated by successive adjustments on these variant curves, while in the Nemelka the change in the pressure, or in grinding distance, or in the level, can each be made by a single and simple manipulation operating uniformly at both ends of the roll.

Adjustment to restore parallelism in the Gray necessarily involves a succession of adjustments of the nuts on the tie-rods, and of the eccentric pivots, alternately, and incidental loosening and tightening of the instrumentalities by which each of these are held in place. If by adjustment to parallelism appellant means adjustment in one plane only (which can never restore parallelism unless the wear happens to be solely in a line corresponding exactly to the direction of this adjustment, as it never would be in practice), this adjustment can be separately made in Nemelka as readily, accurately and directly as in Gray (and in some directions more so) and with no more disturbance of the other adjustments. If, for instance, the wear was such that one end of the Nemelka roll drooped below the other in a direction corresponding to that in which the roll would be moved by turning up the vertical screw, it would only require the movement of this one screw to restore parallelism, and this could be done much more readily than the adjustment of the eccentric pivot of the Gray, and quite as readily as the adjustment of the nut on the Gray tie-rod. There would be just as much probability of the wear being in a direction that could be restored in this one direction in the Nemelka as in the Gray. If, on the other hand, the wear was in a direction that would be compensated for by moving forward the bracket *t*, the advancement of one bracket in the Nemelka would restore the parallelism as readily and as

completely and with quite as little labor as any adjustment of the Gray. In neither case would the disturbance of other adjustments be any greater in the Nemelka than in the Gray. If (as would always happen in Gray as well as Nemelka) the wear was not confined to the exact direction in which one of these adjustments would move the end of the roll, there would be in the Gray, as in the Nemelka, no restoration of parallelism except as the resultant of several adjustments, and the fact that both adjustments in the Gray are made upon variant curves would increase the complexity and difficulty of reaching the desired result.

The disturbance of pressure due to any change in grinding distance or to any readjustment to restore parallelism (whether in the direction which my opponent refers to as tram or in any other direction) would probably be too slight to make a readjustment of the spring pressure necessary, but this disturbance would be equally incident to Gray and to Nemelka, and the occasion for readjustment the same.

In defendant's mill, as in Nemelka (and in fact in all rolls mounted on swinging levers), the greater or less pressure of the movable roll on the fixed roll depends in part on the relative height of the two rolls, or the angle of the lever to the plane of the opposing rolls. In both the pressure is varied by changing the level of the movable roll as well as by changing the tension of the spring, and in both there are provisions for changing either the tension of the spring or the relative height of the rolls. In both the turning of the vertical screws will change the distance between the rolls and the extent of pressure. In both the rolls are separated and returned to fixed position by means of the eccentric shaft on which the swinging arms are pivoted, without disturbing any of the adjustments.

The defendant's movable roll, like the Nemelka, is mounted on a bent lever against the lower or rear arm of which the spring pressure is applied, just as in the Nemelka, and the rigidity of the swinging arms below the rolls is depended upon to transmit this pressure, instead of applying the tension-rod and outside spring pressure *above* the pivot which was a peculiarity of Gray's construction largely relied upon in the Patent Office to secure the allowance of the Gray patent.

There is no toggle-joint in the Nemelka patent any more than in the defendant's machine. In each the lever carrying the roll is a bent lever, and in each the readiness with which the roll will yield backward depends in part upon the stress of the spring and in part upon the angle of the lever to the direction of resistance. The more nearly the line in which the resistance is exerted approaches to the pivot upon which the lever swings, the less readily will the lever yield, and if the lever in either instance should be turned far enough to bring that line through the center of the pivot it would be locked against any resistance. In neither case is it ever brought to that point.

THIRD.—WHICH IS THE PAPER MACHINE?

The effort to ridicule the Nemelka machines as "Paper Machines," and to represent that Gray revolutionized the art, is equally fictitious. Neither defendant's experts nor defendant's counsel have been able to specify an expedient in the Nemelka machine which would not operate efficiently and accurately to make each of the adjustments ascribed to it without any departure from the exact construction shown and specified in the patent. It is not necessary to invoke the rule stated by this court in *Pick-*

ering v. *McCullough* (*104 U. S., 310*), where, in meeting such an objection, the court said (*p. 319*) :

> "It is objected, however, that the machines described in these patents are mere paper machines, not capable of successful practical working. But on examination it sufficiently appears, we think, that the objections can be sustained only as to minor matters of detail in construction, not affecting the substance of the invention claimed, and could be removed by mere mechanical skill, without the exercise of the faculty of invention. In this view, the Wise and Smith patents are not rendered inefficient as defenses in this suit, by reason of the alleged imperfections of the machines described in them."

In the present case there is not a mechanical detail of the Nemelka patents that requires any modification to make its provisions for every adjustment as perfect as any expedients shown in the Gray, and in many respects they are far superior. If either is to be treated as the paper machine, it is the Gray. Complainant's witnesses are compelled to admit that it was the superior work done by the mills at Buda Pesth, Austria (the country of Nemelka), that led to the introduction of roller mills into this country. (*See my former brief, pp. 80–83, and evidence there cited.*)

The use of a belt to drive the rolls, and other mechanical details which Gray undertook to cover by later patents, and the use of metal rolls with suitable corrugations, and the use of the tie-rod connecting these rolls above their bearings and supporting them by tension (as distinguished from the thrust against the lower arm of the lever used by Nemelka and defendant), were the features mainly dwelt upon by complainant's witnesses as distinguishing the Gray mills and giving them their alleged superiority. None of these features were novel with Gray, unless it be the use of the tension-rod, directly connecting

the two opposing rolls above their bearings and sliding longitudinally through the sockets over the stationary roll. The belt drive patent has been held invalid by this court in *Consolidated Roller Mill Company* v. *Walker*, (*138 U. S., 124*) where the belt drive was shown to have been borrowed from an Austrian mill. It was after his return from Austria that Gray applied for the patent here in controversy, as well as that on the belt drive. It is only upon the assumption that the Gray patents cover all mills which use any means for either spreading the rolls or adjusting them to parallelism, or which use the belt drive, that this mill can be said to have been adopted by others. Complainant has never made or sold a Gray mill, or a mill using any of its adjustments. Gray was obliged to modify the mill shown in this patent by introducing into it features copied from the foreign patents (including the means of spreading the rolls without destroying their parallelism) before his machine could go into competition with other mills, and defendant's mill illustrates how much closer the art has adhered to Nemelka than to Gray in all material respects. It would be much more accurate to say that the whole art sprang from Nemelka, and was brought directly from his home in Austria, than to attribute any advance in it to Gray.

Nemelka seems to have anticipated complainant's witness, Putnam, in discovering that it was better to dispense with springs than to use them. This witness, Putnam, having testified for the complainant about the great value of springs in roller mills, it was shown, in reply, that he had removed all spring pressure from the roller mills under his charge (though they were mills made under the Gray patents, with the alleged improvements claimed by Gray in subsequent patents), and that he had been for a long

time operating these mills with the rolls running rigid, going to the trouble of removing or blocking the springs because he preferred to dispense with them. It was further shown that other mill managers, acting upon his representation that the mills were better without springs than with them, had removed their springs and had continued to use their mills without, finding that they gave better satisfaction than while the springs were on. (*See stipulation, p. 22, Add. to Rec., and statements of Simpson, Doren and Putnam, pp. 20, 21.*) While showing and describing the springs in his several patents, Nemelka, in each of them, also illustrates mills made without springs and having all the other adjustments.

The statute makes a prior patent a defense, and does not require evidence of use of a machine shown in such patent. Evidence of use abroad is not competent to show anticipation, and there was no occasion for defendant to extend the record and increase the cost of the defense by going to Austria, or other foreign countries, to show the extent to which machines exhibited in prior patents had gone into use. Complainant has not offered evidence to show that they did not go into use or that any of the adjustments provided in them cannot be made by means exhibited in the patents. Defendant's machine sufficiently illustrates the use of the features of Nemelka pertinent to this controversy.

Fourth.—Comments on Opinion Below.

The court below comprehended the several machines too clearly to be misled by the confusion of terms by which appellant seeks to ascribe to the Gray an independent adjustment which it conspicuously lacks and to obscure the fact that the Nemelka construction gives independence

of adjustment in every respect that the Gray does and in other respects in which the Gray is deficient. It was too experienced in reading patents to misunderstand the capacity of the Nemelka machines for independent adjustments in every required direction with a refinement and facility unapproached by Gray and unexcelled by any modern machine. That court could not be blinded to the fact (obvious to every person who has elemental knowledge of physics or mechanics or ordinary mathematics) that rolls cannot be parallel unless their axes are in the same plane and at the same distance apart in that plane throughout their length—in other words, cannot be parallel without being in tram—and that any adjustment to restore parallelism involves necessarily separate provision for moving the end of the roll in more than one direction. Nor could that court be misled about the fact that the Gray patent made no pretense to any novelty in the grinding adjustment, or the means of making it, or in spreading and returning the rolls.

The court's classification of the adjustments made in the Gray patent is taken from the statement of invention at the head of the specification rather than from the fancy of complainant's counsel, except, possibly, the fourth classification, which appears to credit Gray with more than his statement of invention assumes. The "adjustment for grinding distance" is not one of those enumerated in the statement of invention, which recites his invention as consisting in

> "a peculiar construction and arrangement of devices for adjusting the rolls vertically as well as horizontally, whereby any unevenness in the wear of the rolls or their journals or bearings may be compensated for, and the grinding or crushing surfaces kept exactly in line."

Also as consisting in

> "the special devices for separating the rolls when not in action."

It makes no reference either to adjustment to grinding distance or to pressure as constituting any part of the invention. The statement of invention and the proceedings in the Patent Office make it clear that it was only in the specific tie-rods as means of connecting the levers with the bearings of the opposing roll at their *upper* ends (that is, at the opposite end from that at which they were pivoted, so as to afford a support both above and below the roll), and, by their endwise movement, separating the rolls when not in action (the fact that the pivots upon which the swinging arms were supported were forward of the journals of the rolls causing the rolls to fall apart by gravity when the tie-rods were released), that Gray claimed any invention beyond his special means of vertical adjustment of the pivot, which defendant is not charged with using. There is no warrant for the charge that the court below overlooked any adjustment with which the patent is concerned.

The adjustment to grinding distance is provided for in several ways in the Nemelka patents, it seeming to be the object of those patents to illustrate such a variety of means as would prevent subsequent patentees from excluding Nemelka from the use of either that he might prefer. It can be made most rapidly, and with no disturbance of parallelism, by rocking both swinging arms simultaneously on their pivots, through the hand-lever, and locking the lever in the desired notch, thus accomplishing at an instant and without disturbing parallelism in either direction what Gray accomplishes by successively rocking each swinging arm on its pivot by the turning of the several nuts and jam-nuts with inevitable disturbance of par-

allelism and no guide for its restoration. This adjustment by the hand-lever is most expeditious and convenient, and Nemelka appears to give it the preference.

Another means provided in Nemelka by which the grinding distance can be adjusted without disturbing the parallelism is by the vertical screws driven simultaneously by a shaft with reducing gear to minimize the adjustment to a degree of nicety unapproachable by the Gray mechanism. It is not as expeditious as the first means, but enables the adjustment to be made with extreme nicety and at the same time with more rapidity and ease than the coarser adjustment can be made by Gray, and is especially advantageous where exceptionally fine adjustments are desired.

The third means for making this adjustment shown in the Nemelka, is by means of the sliding brackets *t*. Though quite as convenient and expeditious as that of the Gray, it is so inferior to each of the others that it would not be commonly used for the grinding adjustment if the others were present. It would have just the advantages and disadvantages of Gray if used for the purpose of making the grinding adjustment. Like the Gray, it would involve a readjustment to parallelism and a separate manipulation of the supports for each end of the roll. While as available and efficient for this adjustment, as well as for the adjustment for parallelism, as any in the Gray, it would not be as desirable as other means provided in the Nemelka where only the grinding adjustment was to be made and no change in the alignment of the roll desired. It also makes one of the adjustments for parallelism, while the vertical screws (when independently operated as provided in each of the Nemelka patents) make the other adjustment to parallelism, just as the eccentric pivot and the jam-nut in the Gray makes one of these adjustments and

the nut and jam-nuts on the screw-threads of the rod G make the other.

Defendant's machine makes the grinding adjustment as well as one of the two adjustments to restore parallelism by means of vertical screws similar to those of Nemelka, but lacks the shaft by which in some of the Nemelka machines provision is made for operating the screws simultaneously as well as separately. In some of the Nemelka mills these vertical screws are only operated separately, while in others provision is made for operating them both simultaneously and separately. In all, their independent operation is provided for and specified, thus always enabling them to compensate for wear.

Fifth.—As to the Second Gray Patent.

The argument for this patent proceeds on the same false premises as that for the former patent, viz., that separating the rolls in Nemelka destroys the other adjustments, an error which the most elementary knowledge of mechanics should exclude. The Nemelka means of throwing the rolls apart is exactly that adopted by defendant, and is at once simpler and less liable to disturb other adjustments than the circuitous and clumsy means by which Gray seeks to obtain the same result. Appellant claims the same advantage for the former Gray patent, and, if the claim were not so obviously fictitious, it would be impossible to support two successive patents by virtue of the same property secured by the same means, nor could either patent exclude defendant from using the Nemelka rocking shaft applied to and operating upon the pivots of the swinging arms in the same way as in the Nemelka machine. The awkwardness with which Gray copied from prior patents the through shaft and its eccentrics

for spreading both ends of the rolls and the rod for coupling two similar machines together has been more specifically referred to in my former brief (*pp. 116–132*).

The argument that because "so expert a mechanic as Gray" did not, when applying for patent 222,895, perceive that a connecting-rod would transmit the same movement to two shafts, there must be invention in such an expedient, is another illustration of the inverted logic —the transposition of premise and conclusion—which underlies the argument for appellant. Instead of assuming that Gray was ingenious, and arguing from this assumption that the expedients which he patented must, therefore, involve invention, no matter how destitute of originality they appear, the rational course is to infer Gray's deficiency alike as a mechanic and as an inventor from the inferior and circuitous mechanical expedients to which he resorted in his successive patents to accomplish what had been so much better effected in the earlier Austrian, German and French machines that the subsequent art has adhered to their plans and rejected his.

It is due to Gray to say that in neither of his patents does he pretend to have introduced any new adjustments, or any new independence of adjustment, or to have done more than modify in specific details the mechanism for making the same adjustments usual in the prior art. Having gone to Austria and Germany (where he was attracted by the fame of their roller mills) before applying for either of his patents, he could not make such a claim. It was only after his patents passed under the control of the complainant that any pretense was ever made that they could be extended to cover mills which, like defendant's, adopted the expedients of the prior art from which Gray undertook to diverge. Even complainant's expert did not venture to charge infringement of the claims of 222,-